

Driving research and action focused on diet, nutrition and physical activity in cancer

Our Manifesto

Our scope

Nutrition is the set of integrated processes by which cells, tissues, organs and the whole body acquire the energy and nutrients for normal structure and function (achieved through dietary supply) and the capacity of the body to transform the substrates and cofactors necessary for metabolism. All of these domains (diet, metabolic capacity, body composition and level of demand for energy and nutrients) are influenced by levels of physical activity and can vary according to different physiological and pathological or disease states.

There is increasing evidence that exposure to dietary risk factors, inactivity and obesity increases our chances of developing cancer and recurrence. In contrast, the combination of increased physical activity levels, eating well and maintaining a healthy weight may enhance resilience against cancer and the ability to tolerate treatment toxicities, both acutely and long-term.

Anti-cancer treatments may induce metabolic dysfunction and loss of lean tissue, often accompanied by increased central fat (sarcopenic obesity), which can lead to co-morbidities that may compromise survival. In many types of advanced cancer, inflammatory changes mediated by cytokines induce irreversible profound weight loss and asthenia, ie cachexia, which is ultimately a major mediator of suffering and death from cancer.

Nutrition therefore affects cancer risk, resilience, tolerance of treatments, short and long term survival and many aspects of quality of life.

Please see our 'life-map' of nutrition and cancer below

Our aims

- 1. Promote, design and enable translational research to address knowledge gaps in the relationships between nutrition and cancer and the use of nutritional interventions, from prevention to care, when living with and beyond cancer*
- 2. Raise awareness of the need and funding for further multidisciplinary translational research into cancer and nutrition*
- 3. Foster a community of clinicians, patients, the public, researchers, charities and funders to share knowledge, understanding and best practice to jointly deliver the highest quality research.*

About us

The NIHR Cancer & Nutrition Collaboration was set up in 2014 to develop the necessary networking capabilities to enhance research. It is now actively engaged in generating research ideas and successfully winning grants to undertake trials, involving several world class organisations covering the full range of expertise. We have four research work streams:

- Molecular mechanisms: laboratory to first-in-human

- Population health: cancer prevention and early detection;
- Nutritional care for people living with and beyond cancer;
- Nutritional care for children, teenagers and young adults.

These are supported by work streams that are working on how best to characterise nutritional state (the “Toolkit”) and on capability and capacity building across the professional workforce. These are all underpinned by a consumer reference panel.

How do we fit with the national research agenda?

Our work plan has shared priorities with national and international research-funding agencies, charities and societies, especially [NCRI](#), [NIHR](#), [BRCs](#), [Nutrition Society](#) and [WCRF](#).

The [NCRI James Lind Alliance Priority Setting Partnership for Living With and Beyond Cancer \(LWBC\)](#) has announced its results with a list of 26 top priorities. Of these, Priority 9 was: *What specific lifestyle changes (e.g. diet, exercise and stress reduction) help with recovery from treatment, restore health and improve quality of life?*

Many of the other LWBC priorities included aspects of lifestyle, and were concerned with tolerance of treatment toxicities. These all fall in the scope of nutritional influences on cancer recurrence, and long-term morbidity in those who are now called ‘treatable but not curable cancer’ patients.

The WCRF [Continuous Update Projects](#) and other agencies, have called for improved mechanistic understanding of the links between nutrition and cancer. The goals of the Molecular Mechanisms work stream are to address these gaps in understanding, and to promote and facilitate translation of *in vitro* findings into early stage human studies. By providing robust mechanistic evidence which underpins epidemiological and clinical data, the Collaboration will strengthen public health advice and clinical guidelines on how nutrition can influence cancer outcomes.

Our current funding

Recent grants we have won through competitive applications include MRC, Tenovus, WCRF, and The Wellcome Trust. The Collaboration infrastructure is supported by the [Southampton](#) and the [Royal Marsden BRCs](#). We are keen to extend our network of researchers and expertise and make new alliances between other BRCs, [CRFs](#), [CTUs](#) and the emerging [ARCs](#) which have remit and expertise in cancer, nutrition, immune and metabolic mechanisms, across the whole age spectrum and all care settings. We aim to have all our studies on the NIHR portfolio, and work with the NCRI Clinical Studies Groups and other NIHR clusters relevant to our aims.

Please see list below of recent grants, reports and publications.

What we can offer you:

- Gain intelligence and learn of opportunities to collaborate in multidisciplinary research
- Obtain nutritional expertise for your study, especially on methodologies and outcomes
- Guidance on standardised and validated nutritional assessments for your study, in order to facilitate data pooling across wider research
- Access to an experienced patient reference panel with interest in cancer and nutrition
- Links to charities and industry for funding

- A co-ordinated approach to building the evidence base for nutrition and cancer, avoiding unnecessary competition and duplication of effort.
- A base for promoting conferences and meetings relevant to the collaboration's agenda

To discuss collaborative research ideas and other ways of working with us, please contact the Secretariat:

Email: cancer_nutrition@nihr.ac.uk

Phone: 02381 204578

Glossary

ARCs – NIHR Applied Research Collaborations

BRCs – NIHR Biomedical Research Centres

CRFs – NIHR Clinical Research Facilities

CTUs – NIHR Clinical Trials Unit

NCRI – National Cancer Research Institute

NIHR – National Institute for Health Research

WCRF – World Cancer Research Fund

Our 'life-map' of nutritional influences on cancer and its treatments

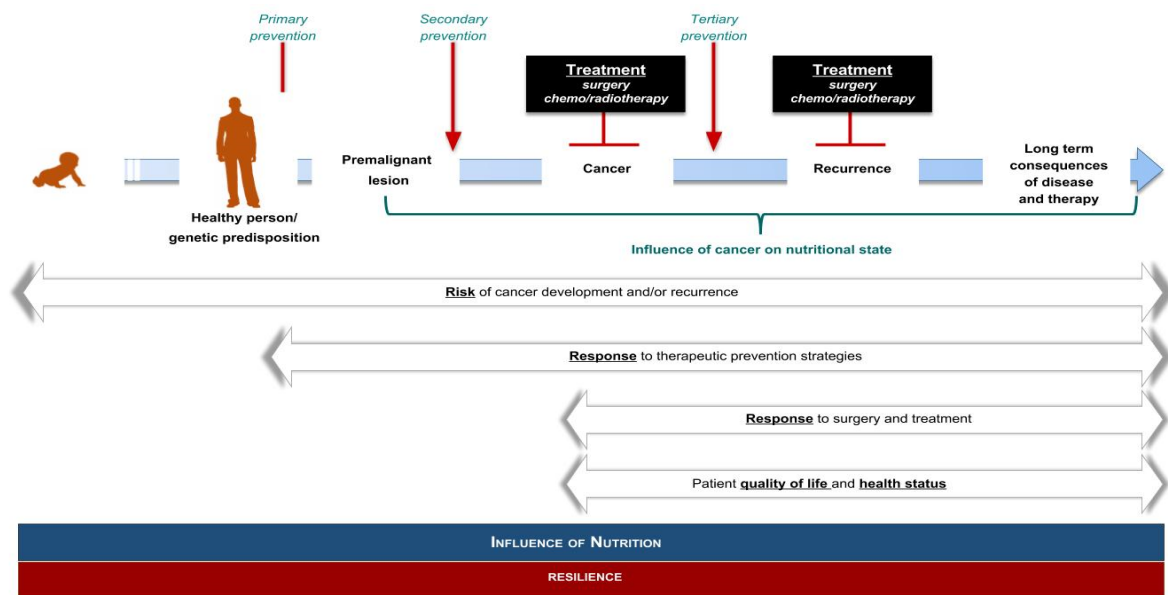


Figure 1 Cancer and nutrition across the life course. NIHR Cancer and Nutrition Collaboration (2017), Phase II report.

©NIHR Cancer & Nutrition Collaboration

Developing a mechanistic understanding of how nutrient-metabolic gene pathways predict and modify responses to chemotherapy in breast cancer. CI Dr James Thorne, University of Leeds, Funded by World Cancer Research Fund

MICA: A phase II trial examining MABp1 (anti-IL1) effects on muscle, physical function and quality of life, in lung, pancreatic or ovarian cancer. CI Dr Barry Laird, University of Edinburgh. Funded by Medical Research Council

Body composition and chemotherapy toxicity in women with early breast cancer. CI: Professor Ramsey Cutress, University of Southampton. Funded by WCRF

Metabolic dysregulation in skeletal muscle and adipose following allogeneic Haematopoietic stem cell transplantation (HSCT) in children, teenagers and young adults – Programme Development Grant funded by the Wellcome Trust . CI: Professor Mike Stevens

Overcoming eating difficulties during chemotherapy and immunotherapy treatment (EAT-CIT). CI Professor Jane Hopkinson, Cardiff University. Funded by Tenovus

Cholesterol metabolism in the tumour microenvironment (post doc funded by Breast Cancer UK, and 2 PhD positions). CI Dr James Thorne, University of Leeds.

Reports and publications

Nutritional assessment and dietetic resource for children and young people with cancer in the United Kingdom. *Pediatric Blood and Cancer* (2022) <https://doi.org/10.1002/pbc.29743>

Cancer survivorship, excess body fatness and weight-loss intervention—where are we in 2020? *British Journal of Cancer* (2021) <https://doi.org/10.1038/s41416-020-01155-2>

Cancer prevention through weight control—where are we in 2020? *British Journal of Cancer* (2021) <https://doi.org/10.1038/s41416-020-01154-3>

[The provision of nutritional advice and care for cancer patients: a UK national survey of healthcare professionals](#). *Supportive Care in Cancer* (2020). <https://doi.org/10.1007/s00520-020-05736-y>

[Body composition after allogeneic hematopoietic cell transplantation / total body irradiation in children and young people: a restricted systematic review](#) (2020) *Journal of Cancer Survivorship*

[The influence of nutrition on clinical outcomes in children with cancer](#) (2020) *Paediatric Blood & Cancer*

[Prehabilitation for people with cancer](#) (2019). NIHR Cancer and Nutrition Collaboration, Macmillan and the Royal College of Anaesthetists

[Action on weight management in cancer – report from the satellite meeting to the European Congress on Obesity \(27th April 2019\)](#)

[Nutritional screening, assessment and provision of advice for people living with and beyond cancer – a UK survey of clinicians. Proceedings of the Nutrition Society \(2018\), 77 \(OCE1\), E25.](#)

[Phase II report \(2017\)](#) – A summary of the progress of the NIHR Cancer and Nutrition Collaboration's activities from 2015-17.

Second [charity workshop report \(February 2017\)](#)

[First charity workshop report \(September 2016\)](#)

[Phase I report \(2015\)](#) – A summary of the NIHR Cancer and Nutrition Collaboration's activities from its inception to 2015.