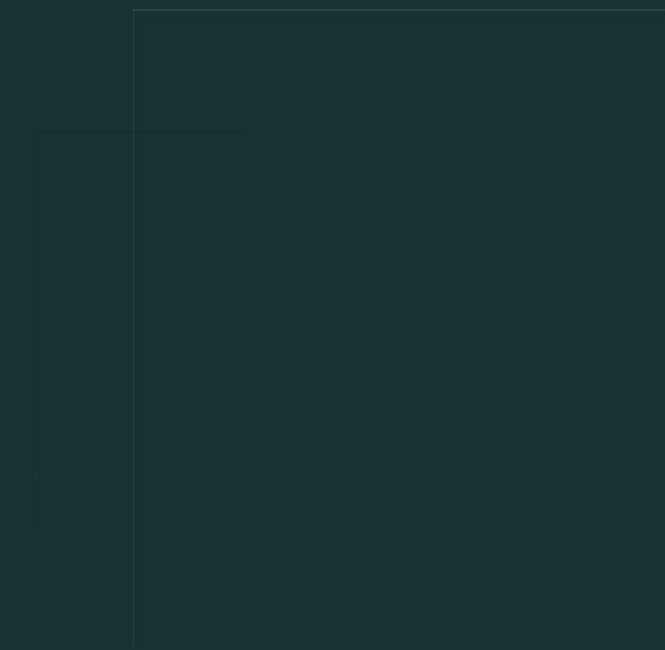


TheNextChapterBreast Cancer Survivorship Webinars

OCTOBER EDUCATION SERIES



WEBINAR 2 — THURSDAY, OCTOBER 8, 2026

Nutrition After Breast Cancer:

Building a Foundation for Long-Term Health

1:00 EST – 60 Minutes

Speaker: Jean LaMantia, Registered Dietitian

Jean will explore the role of nutrition after breast cancer treatment, with a focus on supporting long-term health and quality of life. The discussion will include evidence-based information on:

- Eating well after breast cancer treatment
- Weight management after treatment
- Protein and maintaining muscle
- Bone health, particularly during endocrine therapy
- Gut health and recovery
- Lymphedema risk and how nutrition can help



Nutrition After Breast Cancer Building a Foundation for Long Term Health

Jean LaMantia RD
DIETITIAN • AUTHOR • SPEAKER



Breast Cancer Risk

2 Categories of risk

1. Modifiable
2. Non-modifiable



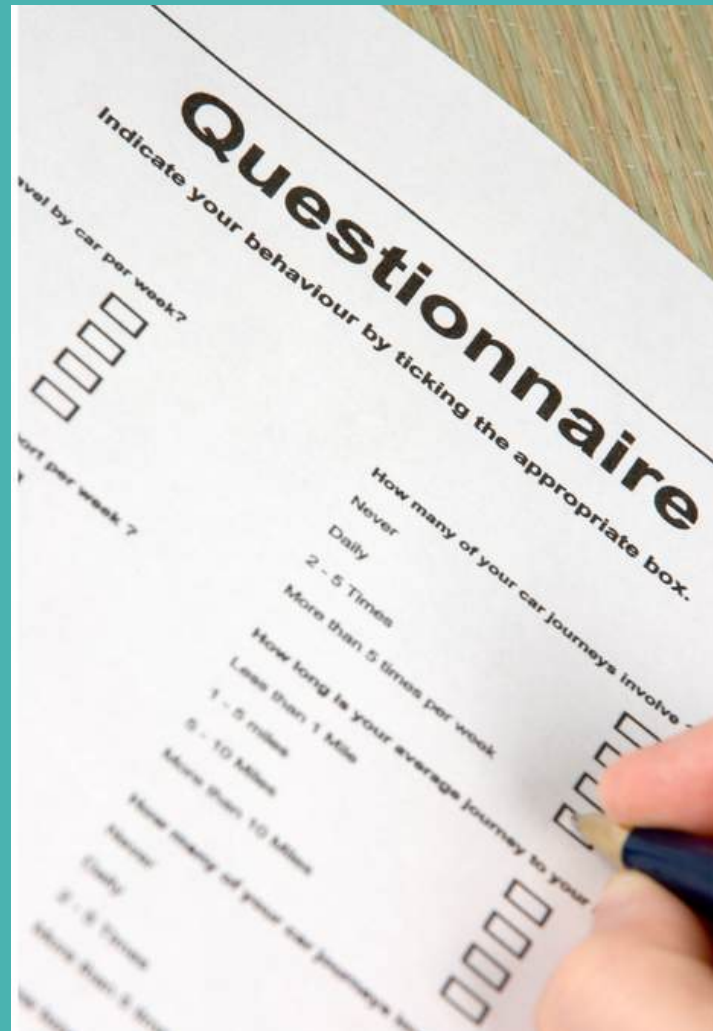
Nomura SJ, Inoue-Choi M, Lazovich D, Robien K. WCRF/AICR recommendation adherence and breast cancer incidence among postmenopausal women with and without non-modifiable risk factors. *Int J Cancer*. 2016 Jun 1;138(11):2602-15.

Breast Cancer Risk Factors

Non-Modifiable Risk	Modifiable Risk
Being tall	Oral contraceptive use
Family history of breast cancer	Alcohol consumption
Younger age of menarche	Low physical activity
Older age of menopause	Overweight or obese (postmenopausal women only)
Nulliparity (not having children) – considered “non-modifiable”	Diet and nutrition

Nomura SJ, Inoue-Choi M, Lazovich D, Robien K. WCRF/AICR recommendation adherence and breast cancer incidence among postmenopausal women with and without non-modifiable risk factors. Int J Cancer. 2016 Jun 1;138(11):2602-15.

Does Adherence to Prevention Strategies Help Prevent Breast Cancer in Women with Non-Modifiable Risks?



- Iowa Women's Health Study (IWHS)
 - Prospective cohort study of 36,000+ women aged 55 to 69 (ie. post-menopausal) when enrolled in 1986 with no prior history of breast cancer
 - Completed 127 item food frequency questionnaire at baseline
- Tested whether the AICR/WCRF 10 recommendations to reduce cancer risk will benefit women who have non-modifiable risk factors for breast cancer

Diet and Physical Activity Changes to Reduce Risk

Factor	Criteria	Score
Be as lean as	BMI 18.5-25	1
	BMI 25 to < 30	0.5
	BMI	0
Sugary Drinks	0	1
	<250 g per day	0.5
	>250 g per day	0
Fruit & Veg Intake	5 per day	1
	3 to < 5 per day	0.5
	< 3 per day	0
Fiber Intake	25 g per day	1
	12.5 - <25 g per day	0.5
	< 12.5 g per day	0
Physical Activity	High (see next slide for details)	1
	Moderate	0.5
	Low	0

Physical Activity



- **High Activity**
 - 2 times/week vigorous (jogging, racket sports, swimming, aerobics, strenuous sports)
 - 5 times/week of moderate activity (bowling, golf, light sports, gardening, long walks)
- **Moderate Activity**
 - 2-4 times per week of moderate
 - 1 time per week vigorous or moderate
- **Low Activity**
 - Less than above

Diet and Physical Activity Changes to Reduce Risk

Factor	Criteria	Score
Red and	< 500 g (16 oz) red + processed per week	1
	< 500 g red + processed per week	0.5
	500 g red + processed per week	0
Alcohol	< 10 g/day	1
	> 10 - 20 g/day	0.5
	> 20 g/day	0
Salt & salty food	< 1500 mg/day	1
	1500-2400 mg/d	0.5
	>2400 mg/d	0
	Maximum Score = 8	
Mod low adherence	4-4.5	
Mod high adherence	5-5.5	
Greatest adherence	6	

Findings



Of the original 36,000 women:

- 3,189 (9%) of women were diagnosed with breast cancer (1986-2010) (24 years)
- Risk score was associated with greater breast cancer incidence i.e.:
 - No or fewer children
 - Taller height
 - Family history
 - Greater "years of fertility" (menarche to menopause)
- Greater incidence with 3 or more risk factors

Risk and Dietary Adherence Score



Findings:

- The higher the adherence score, the lower the risk of breast cancer
- Women who adhered to 6 or more of the 8 recommendations had the lowest risk vs women who adhered to less than half (3 or fewer)

Risk and Adherence Score

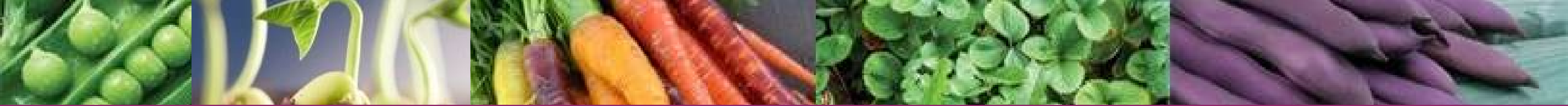
- Women with the fewest non-modifiable risk factors and higher adherence was associated with significant lower breast cancer incidence HR = 0.74 (26% less likely to develop cancer)
- Women with the greatest number of non-modifiable risk factors and higher adherence was associated with non-significant lower breast cancer incidence HR = 0.76 (24% less likely to develop cancer)
- “Better adherence to the AICR/WCRF cancer prevention guidelines is associated with a lower risk of postmenopausal breast cancer, regardless of a woman’s non-modifiable risk factors.”
- The 2 most important recommendations:
 1. Limit alcohol intake
 2. Maintain a healthy body weight



Weight Management After Breast Cancer

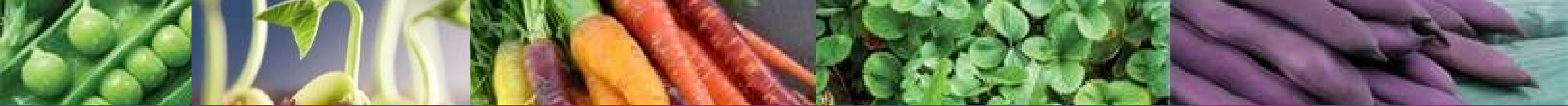
Standard Advice



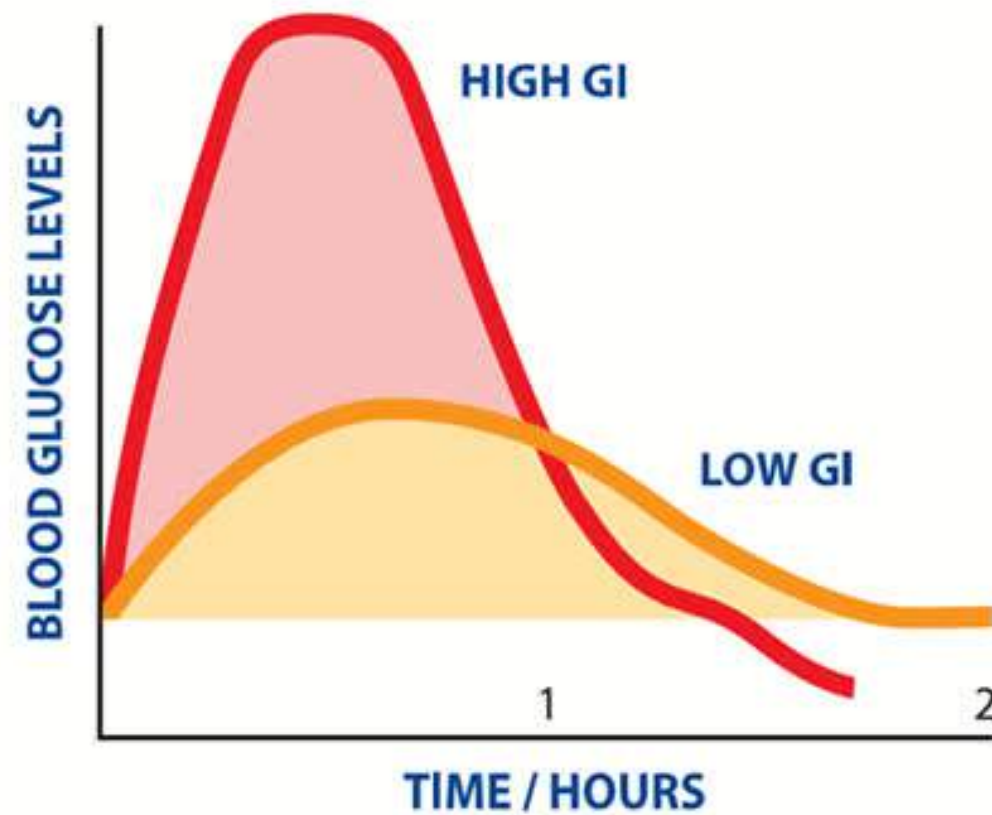


5 Tips to Help with Post Cancer Weight Loss...or Weight Gain Prevention

1. Eat low glycemic
2. Overnight fasting
3. Make the right choice, the easy choice



Glycemic Index and Glycemic Load and Breast Cancer

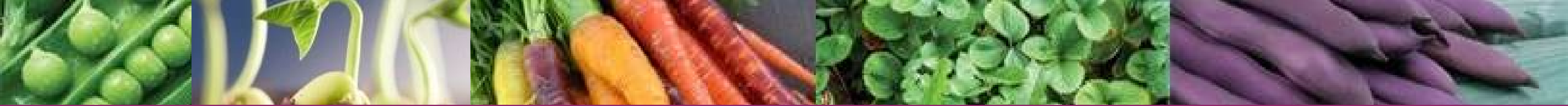


Measures Quality

Image: www.glycemicindex.com

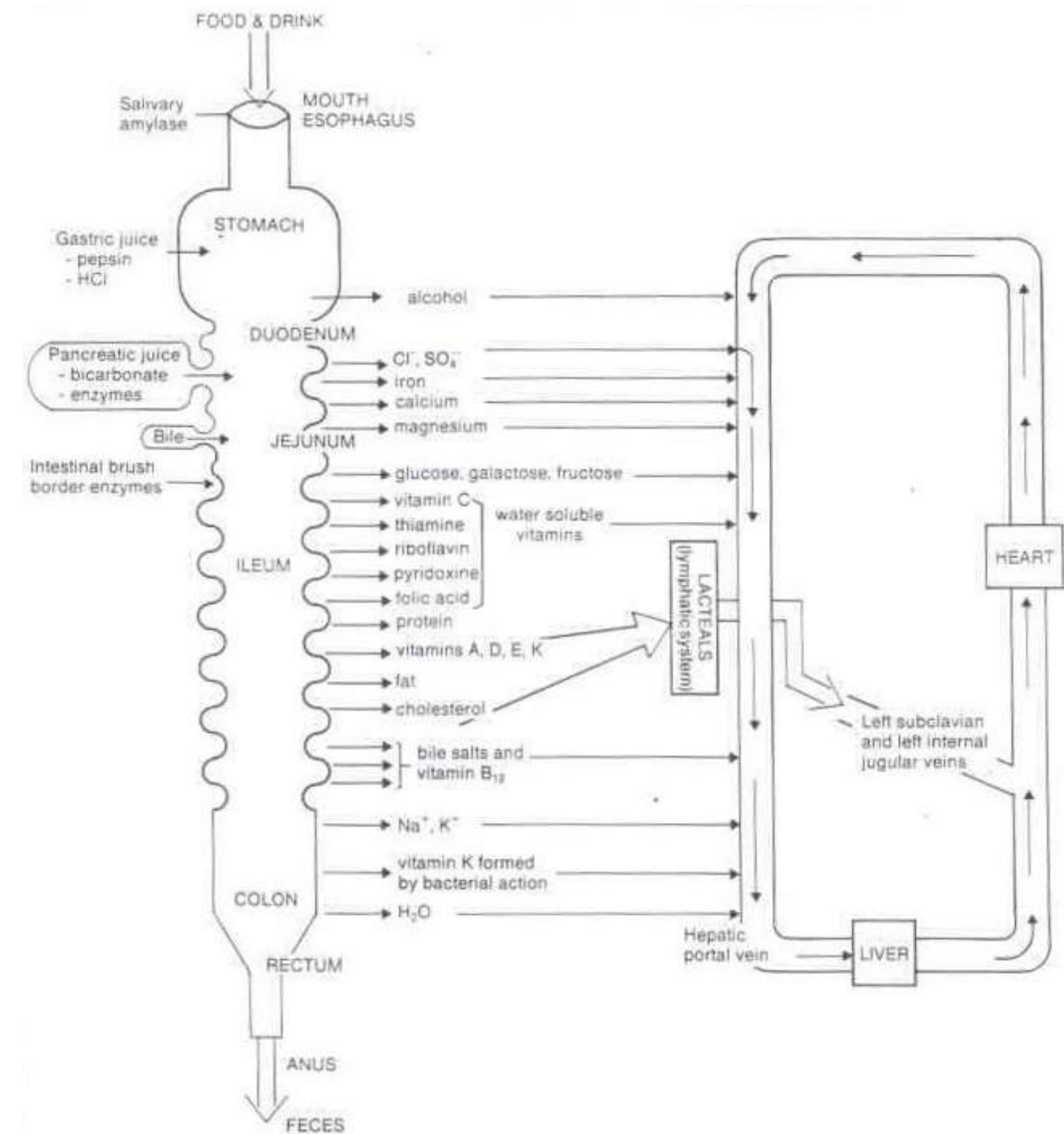
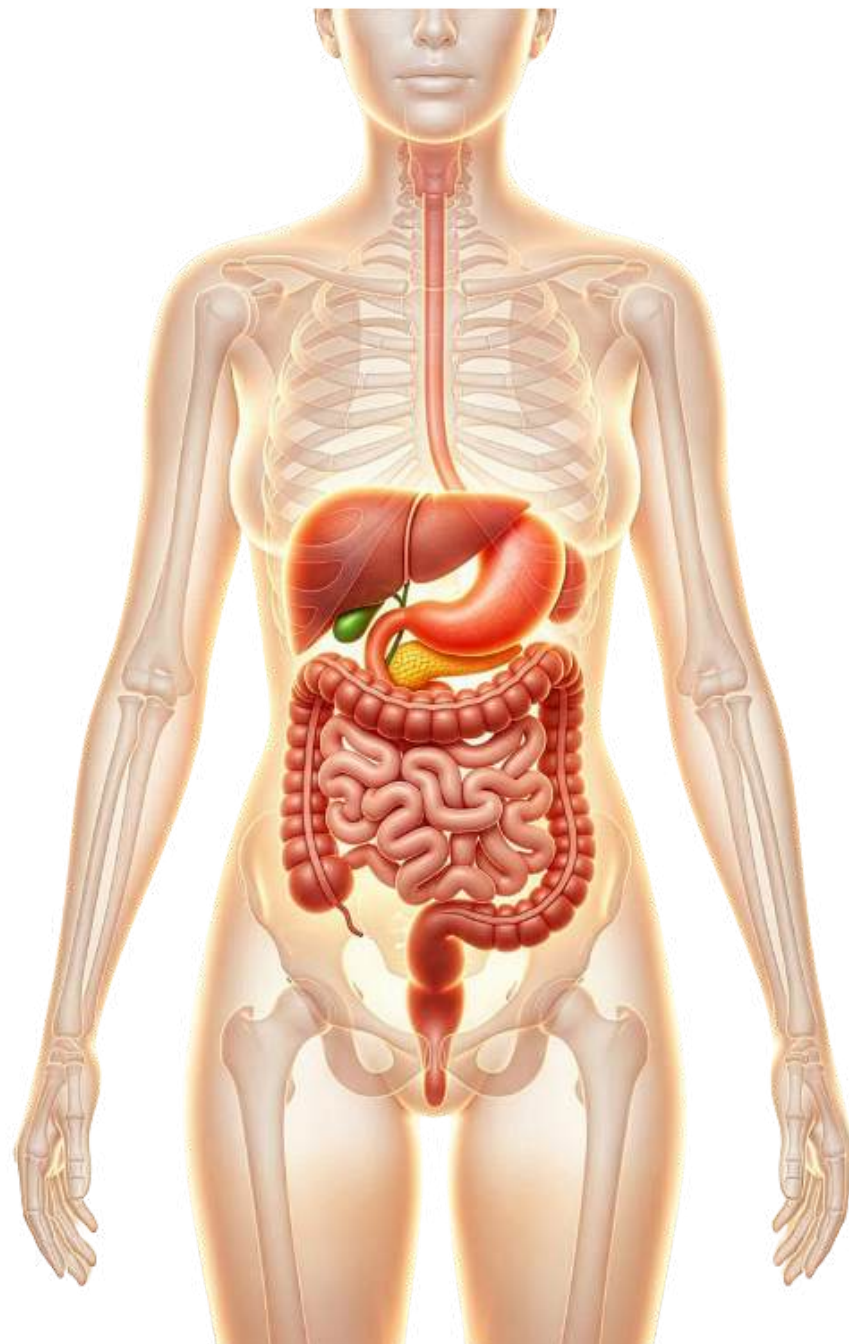
$$\text{GI} \times \text{Carb Content} \div 100$$

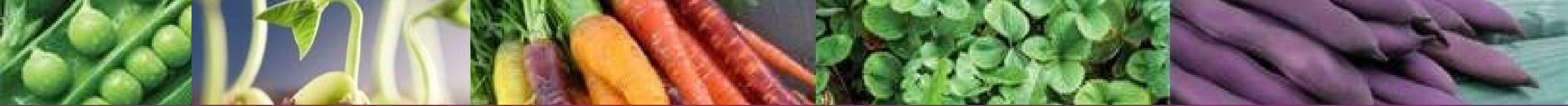
Measures Quality and Quantity



The Gastrointestinal System

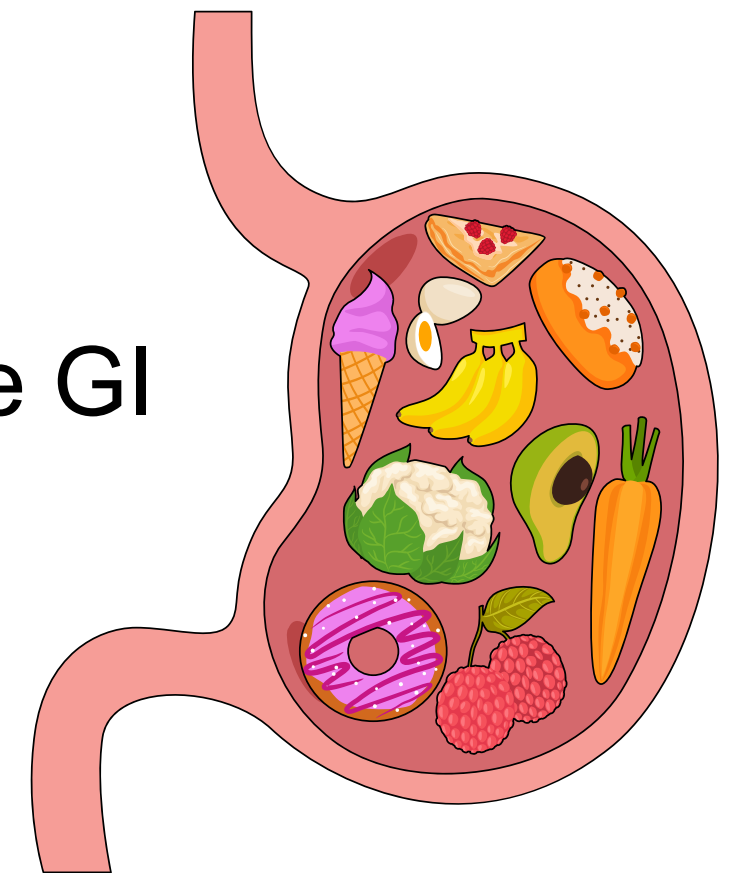
Krause, M.S. and Mahan, L.K. Food Nutrition and Diet Therapy. W.B. Saunders Company. Philadelphia. P. 86. 1984

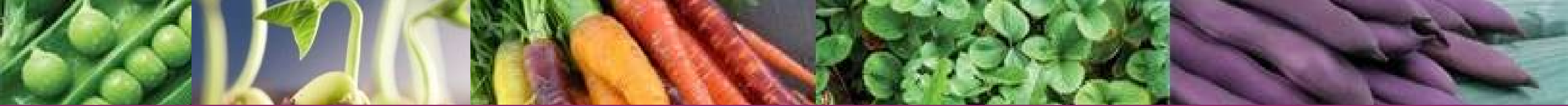




How to Eat Low Glycemic

- Choose whole, less processed foods
- Eat protein, vegetables then grains in that order
- Chilled grains form resistant starch and are lower GI
- Consume soluble fibre 20 minutes before the meal to lower the GI
- Walk after the meal to reduce blood sugars and insulin
- Lower carbohydrate meals will be lower glycemic
- Avoid carbohydrate on their own on an empty stomach
- In addition to low GI...time restricted eating





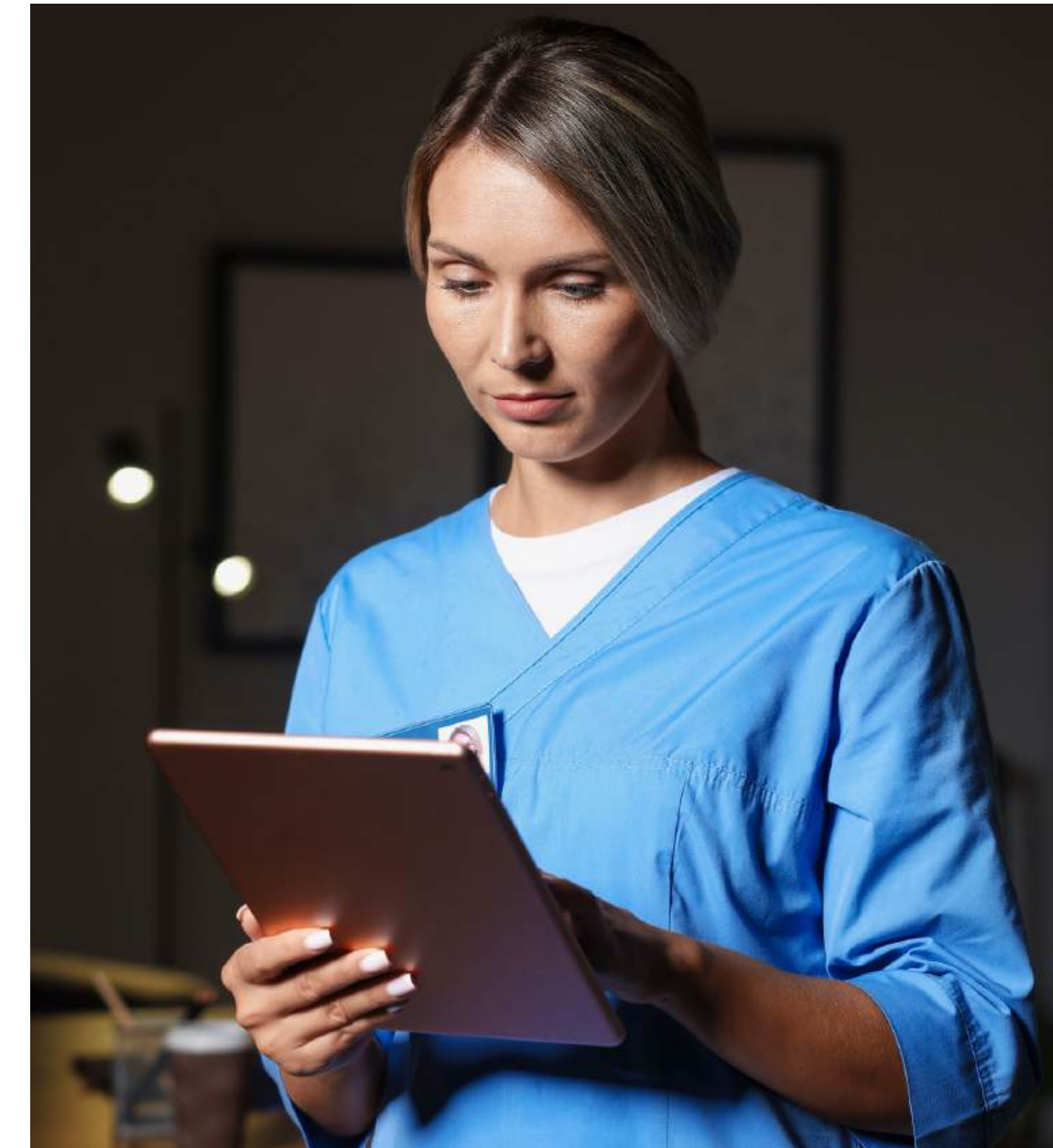
Time Restricted Eating - Two Epidemiological Studies

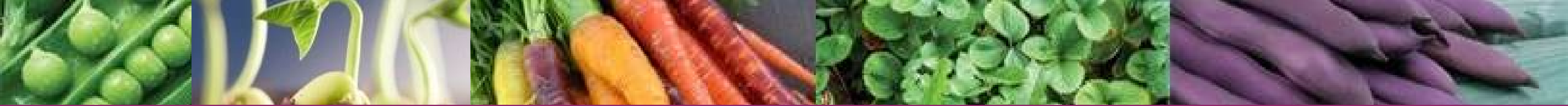
Marinac, 2016 NHANES

- 2413 women with breast cancer
- Fasting less than 13 hours per night was associated with a 36% increase risk of recurrence of breast cancer

Kogevinas, 2018 MCC-Spain

- 1826 men and women with prostate and breast cancer and 2,000 controls
- If they ate dinner by 9 pm compared to after 10 pm, they had 35% lower risk of developing breast or prostate cancer
- If they had 2 or more hours between finishing dinner and bedtime:
 - 26% lower risk of prostate cancer
 - 16% lower risk of breast cancer
- Breast and prostate the two most common night-shift related cancers

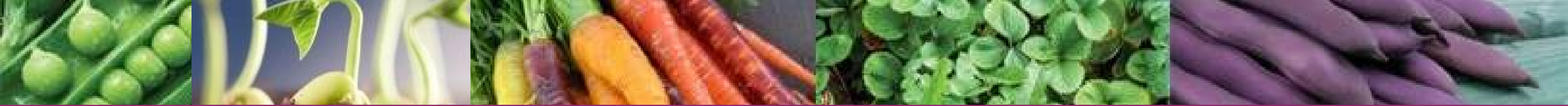




Make the Right Choice the Easy Choice



Protein and Maintaining Muscle

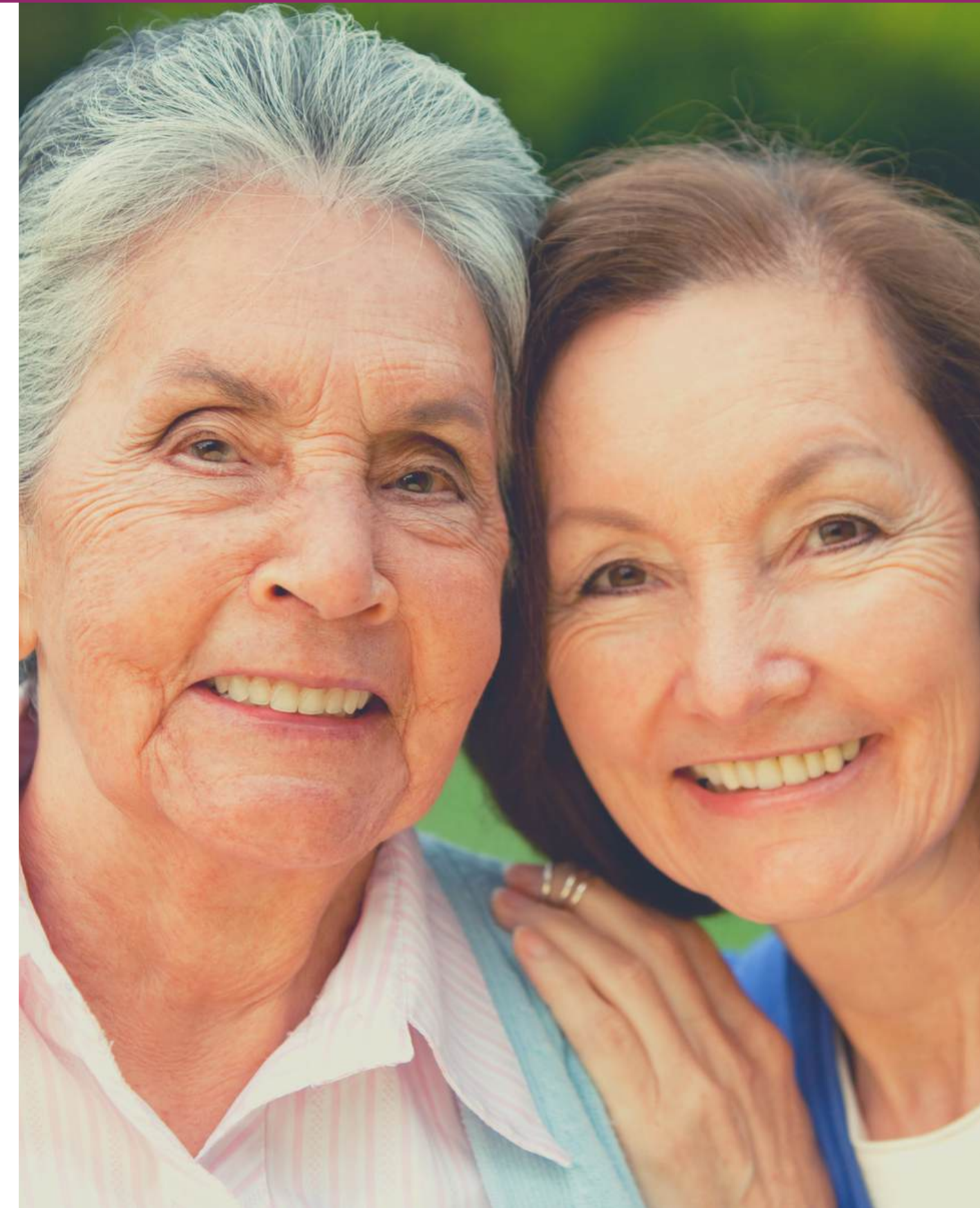


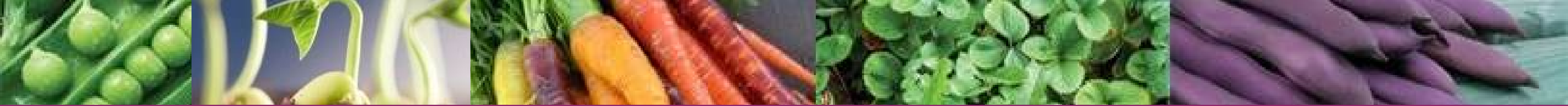
Muscle and Aging

Sarcopenia: the age related decline in muscle strength, muscle mass, and performance.

- Incidence ranges from 10% to 27% in people over 60 years
- More dietary protein is needed to combat sarcopenia

Petermann-Rocha F, Balntzi V, Gray SR, et al. Global prevalence of sarcopenia and severe sarcopenia: a systematic review and meta-analysis. *J Cachexia Sarcopenia Muscle*. 2022 Feb;13(1):86-99.





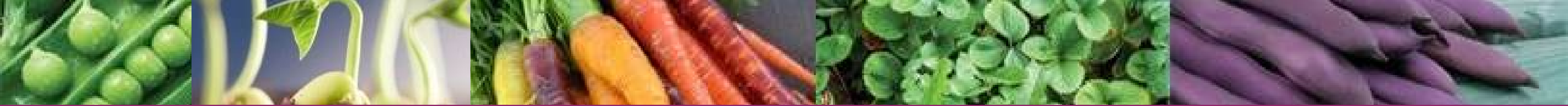
Cancer Treatment and Muscle

Review of Research on Muscle after Cancer Treatment:

- 10-15% reduction in pectoralis muscle after chemotherapy
- 4-17% reduction in handgrip or knee extensor strength (some found no change)
- Increased fat within and between muscle
- 24% lower six-minute walk performance after chemo
- Biopsies show smaller muscle fibres

Mallard J, Hucteau E, Hureau TJ, Pagano AF. Skeletal Muscle Deconditioning in Breast Cancer Patients Undergoing Chemotherapy: Current Knowledge and Insights From Other Cancers. Front Cell Dev Biol. 2021 Sep 14;9:719643.





Protein Requirements

- **0.8 g/kg/day**
 - RDA minimum protein required to prevent disease (1)
- **0.9-1.2g/kg/day**
 - Optimal health for the average population with low-moderate activity levels, no comorbidities and not losing weight (2)
- **>1.2g/kg/day**
 - To preserve muscle protein synthesis during calorie restriction-induced weight loss and
 - More protein if exercising
 - More protein if insulin resistant (2)
- **1.25-1.5 g/kg/day**
 - Wound healing (3)

See next page for references

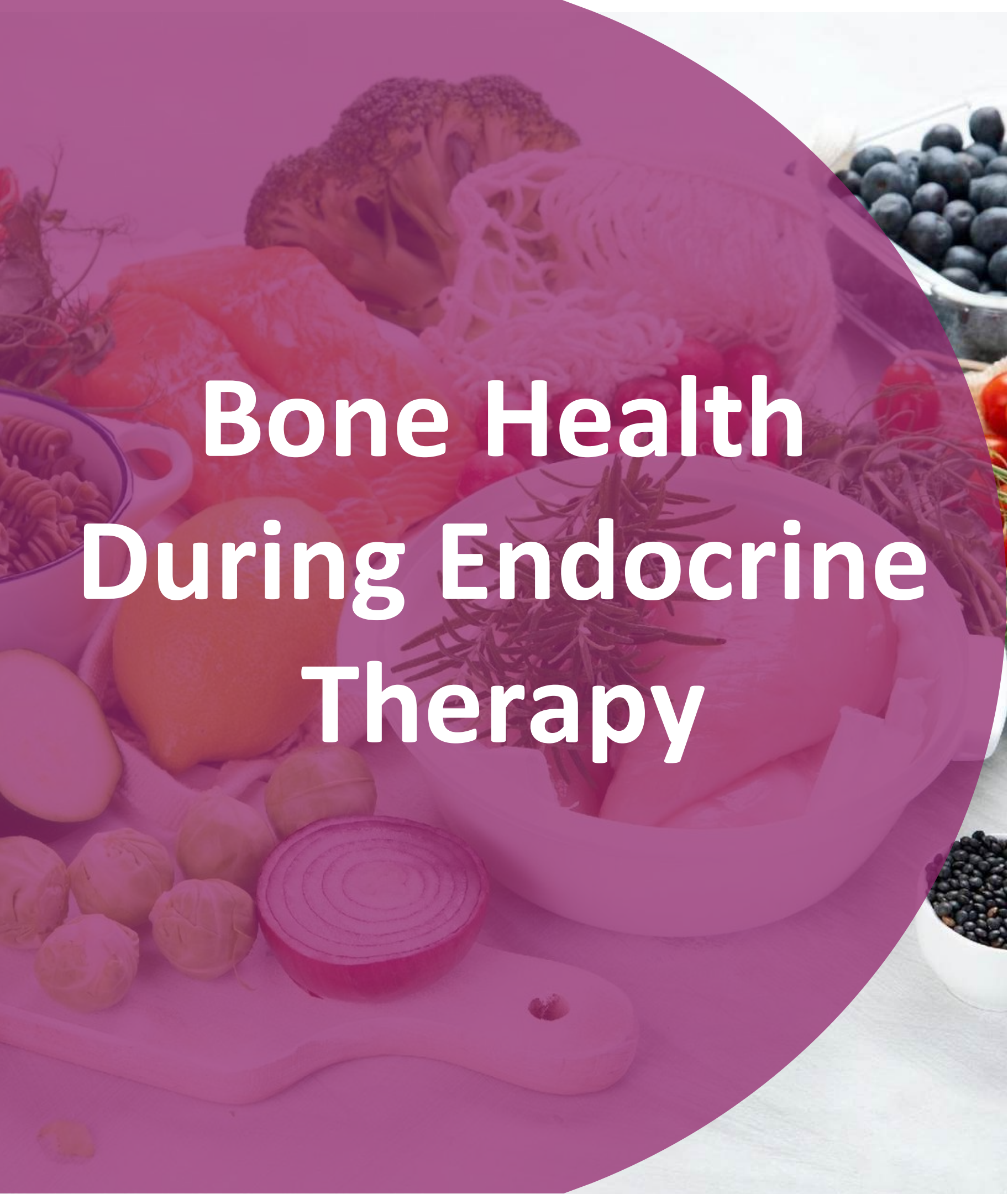




References - Protein

1. National Academies. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, cholesterol, Protein and Amino Acids. The National Academies Press. 2005. www.nap.edu. Accessed May 28, 2023. <https://nap.nationalacademies.org/read/10490/chapter/12>
2. Beals JW, et al. Obesity Alters the Muscle Protein Synthetic Response to Nutrition and Exercise. *Front Nutr*. 2019;6:87. Published 2019 Jun 13.
3. Munoz N, et al. The Role of Nutrition for Pressure Injury Prevention and Healing: The 2019 International Clinical Practice Guideline Recommendations. *Adv Skin Wound Care*. 2020 Mar;33(3):123-136.





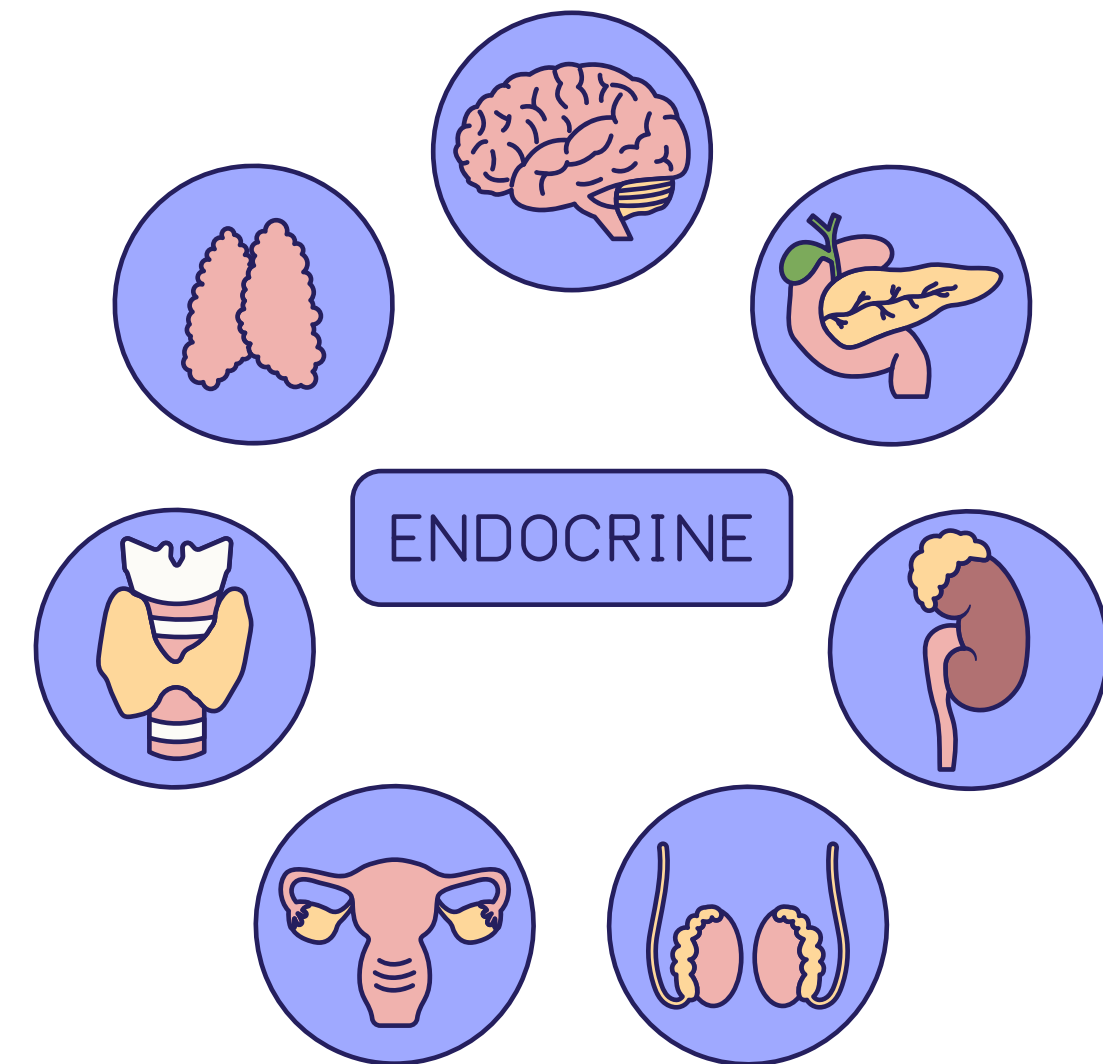
Bone Health During Endocrine Therapy

Jean LaMantia RD
DIETITIAN • AUTHOR • SPEAKER



Endocrine Therapy/Hormone Therapy

- Endocrine therapy primarily works by interfering with endocrine signaling, blocking hormone synthesis, or targeting hormone receptors
- Tamoxifen (selective estrogen receptor modulator)
- Anastrozole, Letrozole, Exemestane (aromatase inhibitors)
 - Bone loss is a side-effect

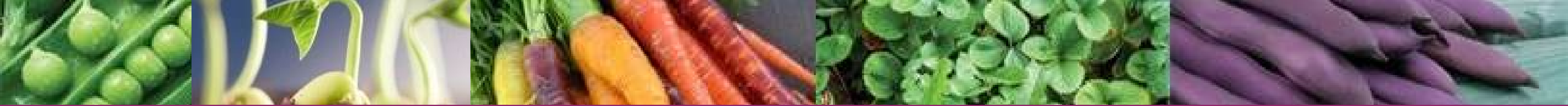




Management of Bone Loss

- Smoking and alcohol cessation
- Bone mineral density measurement at baseline and every 2 years
- Adequate calcium intake (diet and supplement):
 - 1200 mg/d
 - Calcium carbonate with meals
 - Calcium citrate if on a proton pump inhibitor
- Vitamin D: 800 IU/d
- Exercise therapy
- Manage as per osteoporosis guidelines



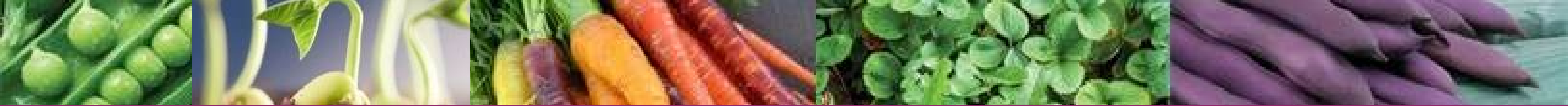


Calcium

Good sources of calcium include

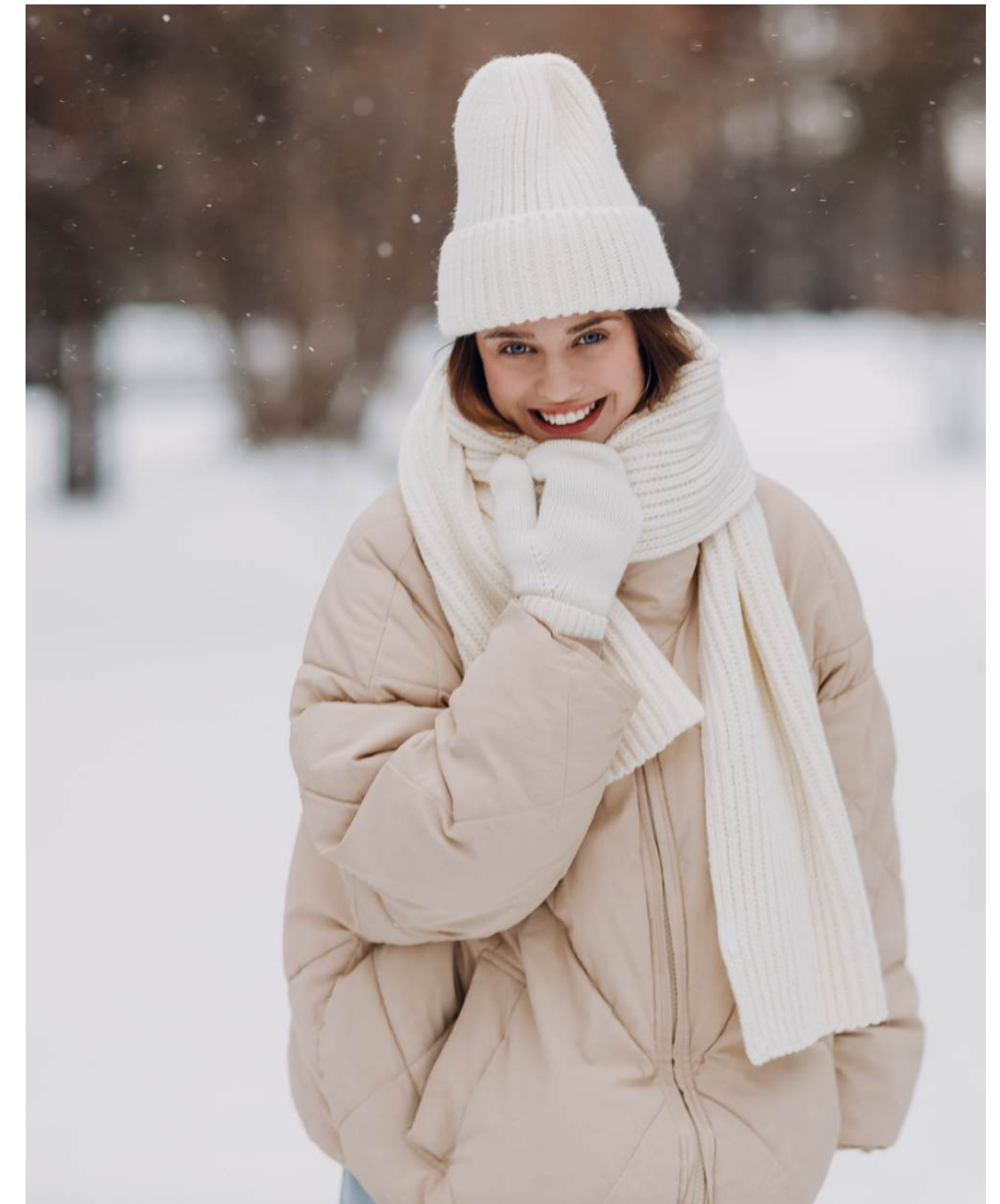
- Milk products
 - Milk, cheese and yogurt
- Fish products containing bones
 - Canned salmon and sardines
- Calcium-fortified beverages such as
 - Soy beverage or orange juice
- Other food sources
 - Calcium-set tofu, leafy greens and legumes such as soybeans or chickpeas

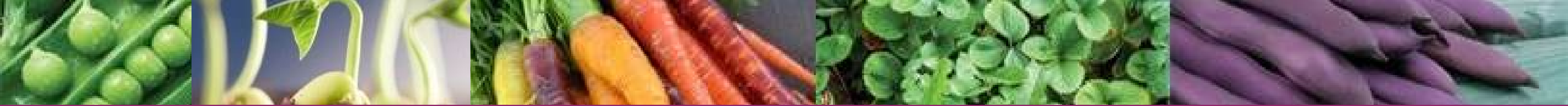




Vitamin D

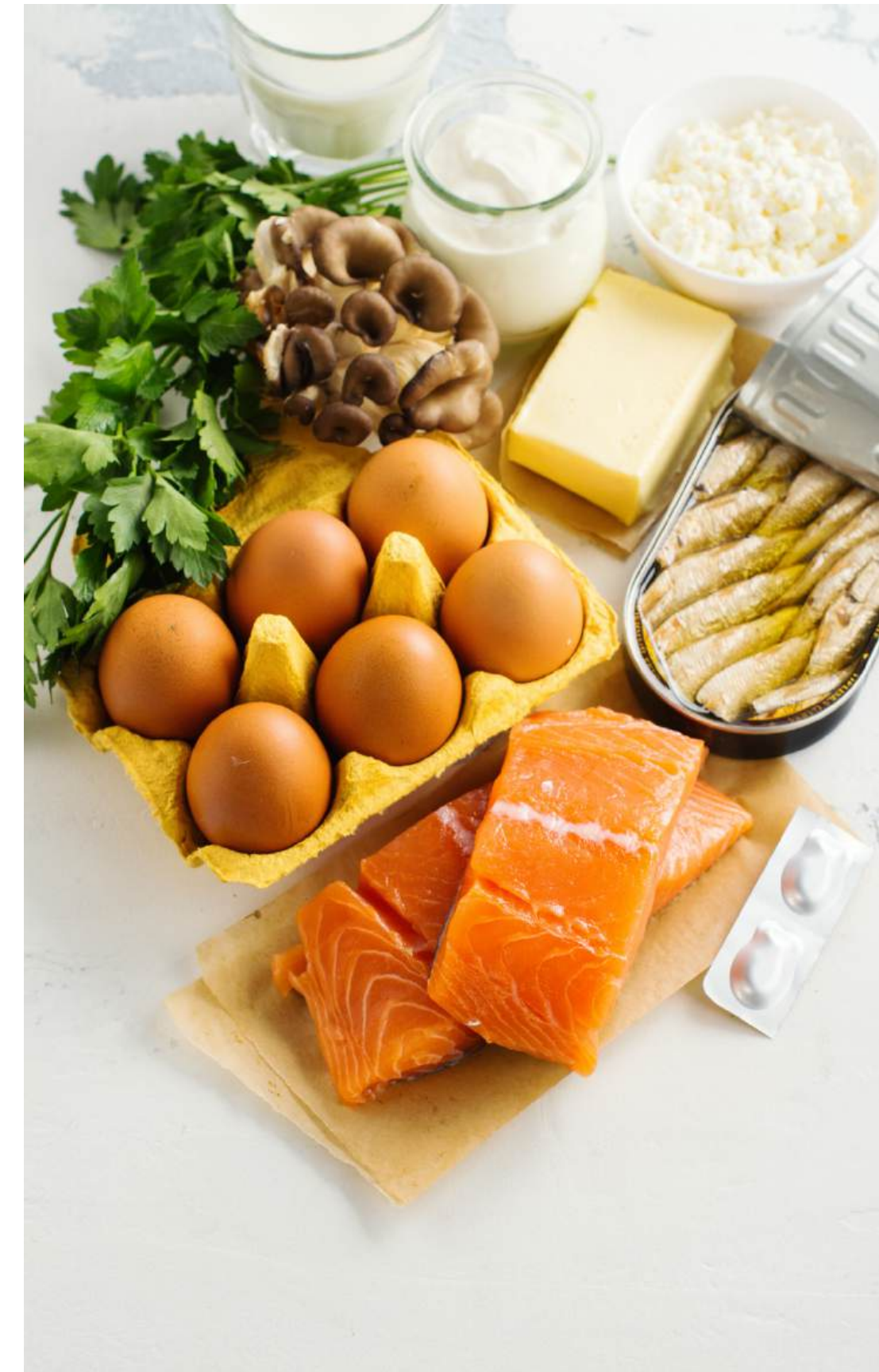
- Vitamin D can be made in the skin following exposure to the ultraviolet (UVB)
- Factors that reduce vitamin D from the skin:
 - Winter season
 - Use of sunscreen
 - Darker skin tone
 - Older age
 - Extensive clothing coverage





Vitamin D Food Sources

- In Canada, it is required that cow's milk and margarine be fortified with vitamin D
- Other sources include:
 - Fortified goat's milk,
 - Plant-based beverages (e.g., soy-based)
 - Calcium fortified orange juice
 - Some cheeses and yogurts made with vitamin D fortified milk
- Natural sources: fatty fish, fish liver oils and egg yolk
- Health Canada: everyone over the age of 50 should supplement with 400 IU





Gut Health and Recovery

Jean LaMantia RD
DIETITIAN • AUTHOR • SPEAKER



Gut Changes After Chemotherapy

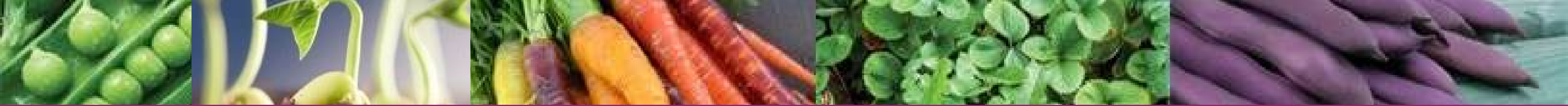
- 317 Cancer survivors, 86% received chemotherapy
- Persisting GI symptoms noted:
 - Constipation 54%
 - Diarrhea 50%
 - Bloating/gas 55%
- Duration 30.5 +/-33 months (2.5+/-2.75 years)
 - Range: 2 ½ months to 5+ years



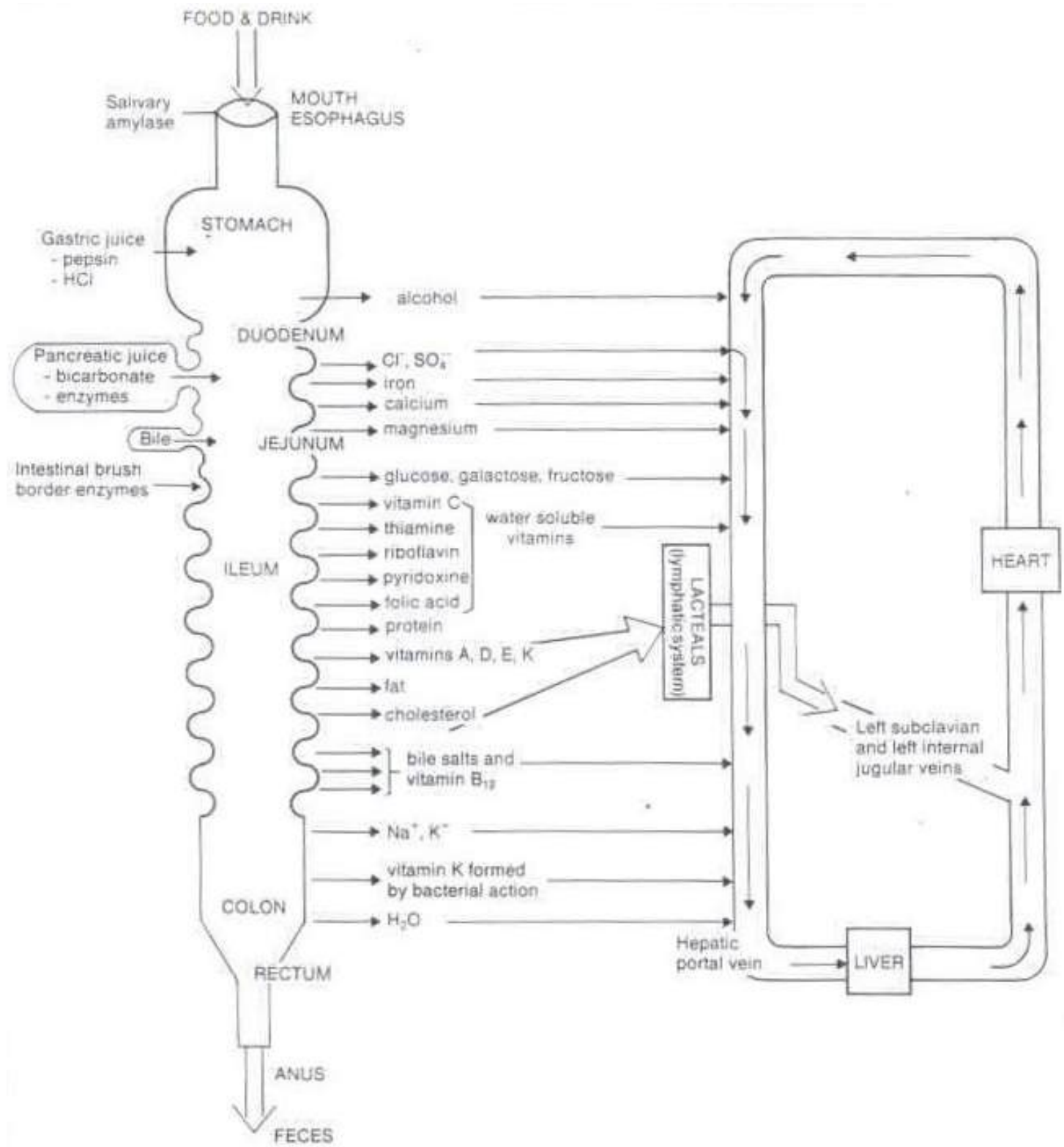


Nutrition Strategies for Gut Issues

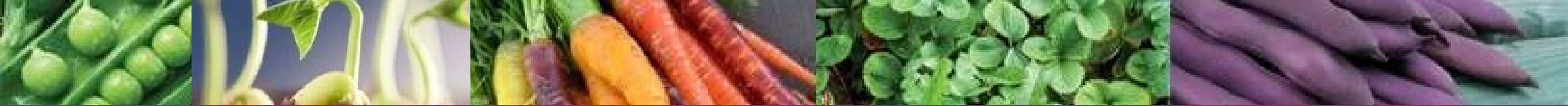




Constipation



Grainger, Angela. (2021). The anatomy and physiology of the gastrointestinal tract. British Journal of Healthcare Assistants. 15. 164-168. 10.12968/bjha.2021.15.4.164.



Strategies to Help With Constipation

1. Fibre
2. Fluid
3. Activity

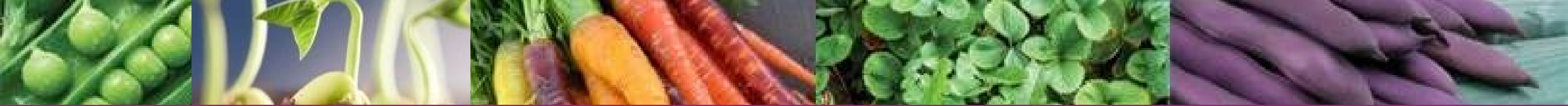




Strategies to Help With Diarrhea

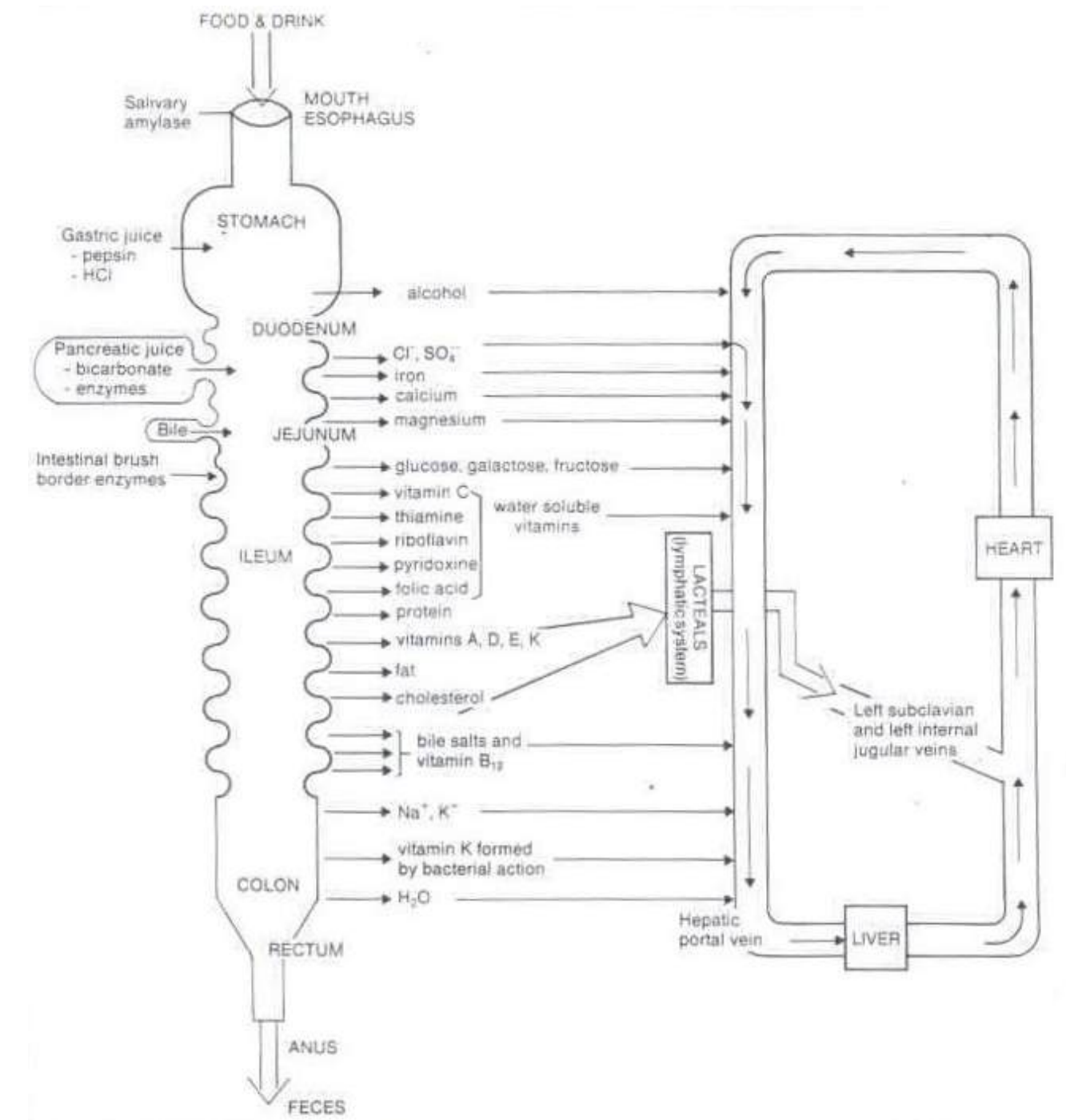
1. Fibre
2. Fluid
3. Elimination protocol

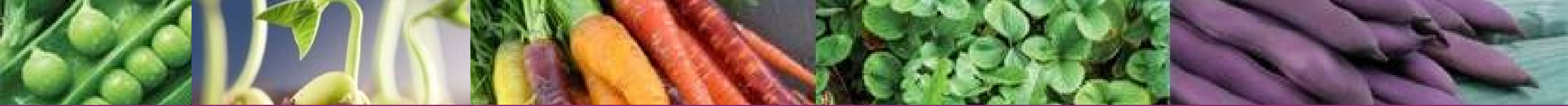




Strategies to Help With Gas and Bloating

- When gas is present, carbohydrates are usually responsible

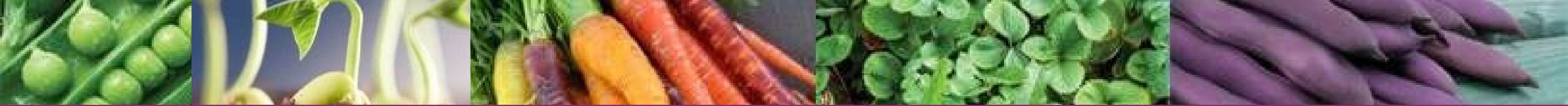




Strategies to Help With Gas and Bloating

- Kombu seaweed
 - contains alpha-galactosidase and beta-galactosidase enzymes plus other obscure enzymes





Fennel or Fennel tea

- Active compounds ease muscle spasms and tension in the digestive walls
- Breaks up gas bubbles and allows them to move smoothly through and out of the digestive system
- Chewing fennel stimulates digestive juices and stimulates release of saliva, bile, and gastric enzymes
- Fennel helps regulate peristalsis—the natural wave-like muscle contractions that move food through your system.

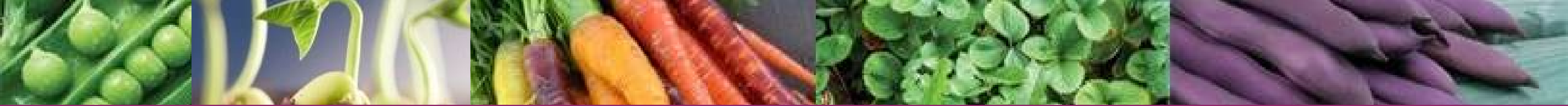




Mukhwas

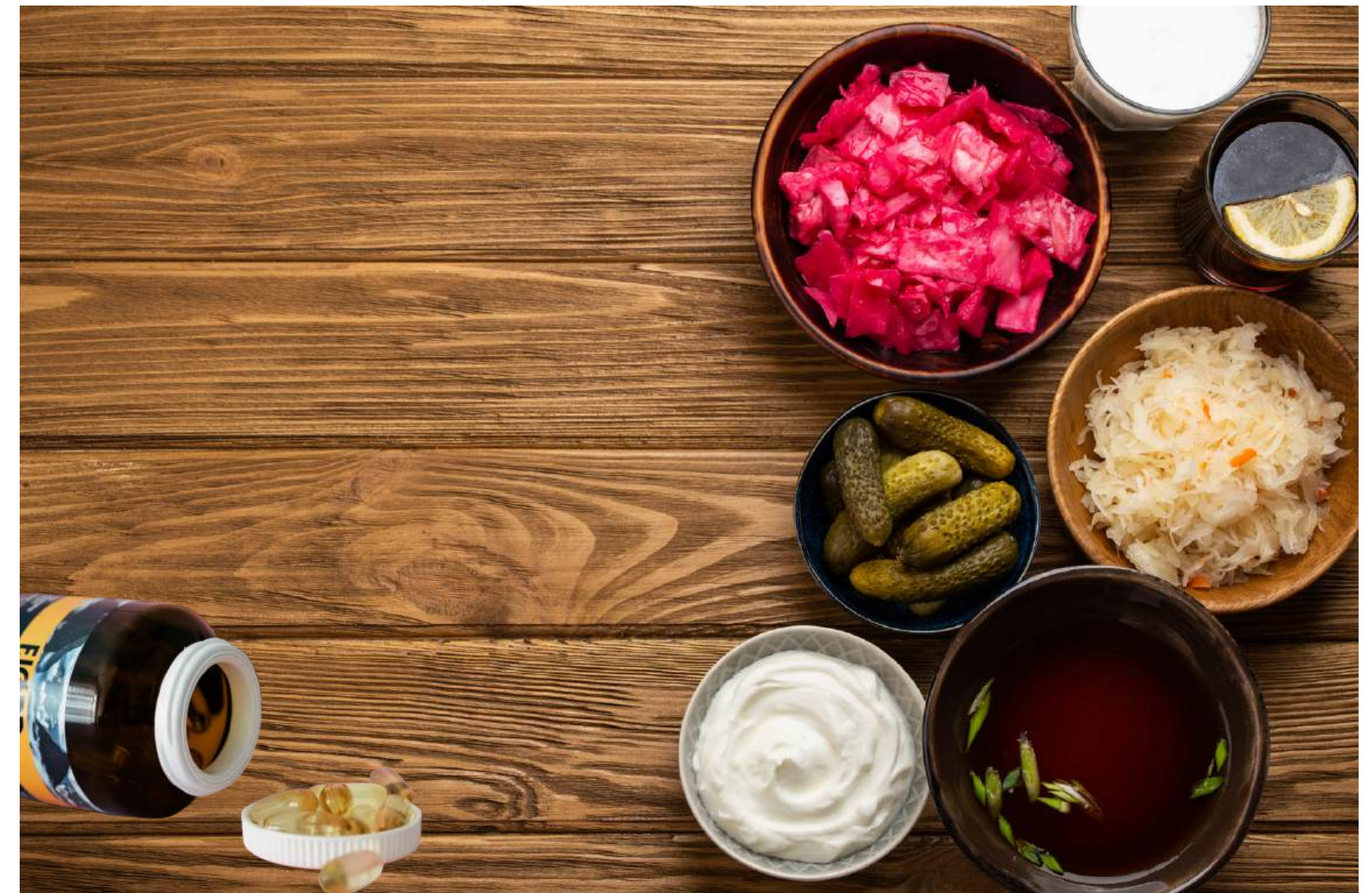
- Various nuts and seeds usually fennel, anis, coconut, coriander and sesame

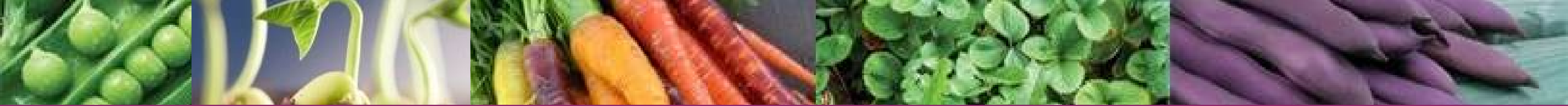




Enzymes, Pre and Probiotics

- Enzymes such as
 - Beano (alpha-galactosidase)
- Mixed digestive enzymes
- Prebiotics
 - Inulin
 - Green bananas, onion, garlic, Jerusalem artichoke
- Probiotics
 - Yogurt, kefir, sauerkraut
- Pre, pro or synbiotic supplements





Low Fodmap

- An elimination protocol used to reduce intake of **Fermentable Oligosaccharides, Disaccharides, Monosaccharides And Polyols**
- Used for IBS (irritable bowel syndrome)



Vegetables

Fruits

Dairy and alternatives

Protein sources

Breads and cereal products

Sugars/ sweeteners & confectionery

Nuts and seeds

HIGH FODMAP FOODS AND

Artichoke, asparagus, garlic, green peas, leek, mushrooms, onion, red capsicum (bell pepper)
Apples, apple juice, cherries, dried fruit, mango, nectarines, peaches, pears, plums, watermelon
Cow's milk, custard, evaporated milk, ice cream, soy milk (made from whole soybeans), sweetened condensed milk, yoghurt
Most legumes/pulses, some marinated meats/poultry/seafood, some processed meats
Wheat/rye/barley based breads, breakfast cereals, biscuits and snack products
High fructose corn syrup, honey, sugar free confectionery
Cashews, pistachios

LOW FODMAP ALTERNATIVES

Aubergine/eggplant, bean(green), bok choy, green capsicum (bell pepper), carrot, cucumber, lettuce, potato, bean shoots, zucchini (65g / 2.3oz)
Cantaloupe (¾ cup or 120g/4.2oz), kiwi fruit (green), mandarin, orange, pineapple, strawberries (5 medium)
Almond milk, brie/camembert cheese, feta cheese, hard cheeses, lactose-free milk, soy milk (made from soy protein)
Eggs, firm tofu, plain cooked meats/poultry/seafood, tempeh
Gluten free corn flakes, oats, quinoa flakes, quinoa/rice/corn pasta, rice cakes (plain), sourdough spelt bread, wheat/rye/barley free breads
Dark chocolate, maple syrup, rice malt syrup, table sugar
Macadamias, peanuts, pumpkin seeds, walnuts

Lymphedema Risk and How Nutrition Can Help



Reducing Lymphedema Risk



- Fewer lymph nodes removed
- Limiting total dose of radiation
- Starting physical activity after surgery
- Manual lymphatic drainage
- Compression bandaging
- Skin care
- Protect limb from injury/infection
- Avoid weight gain or overweight
- Other nutrition strategies???

ImageCanva



Blood Fat and Dietary Fats

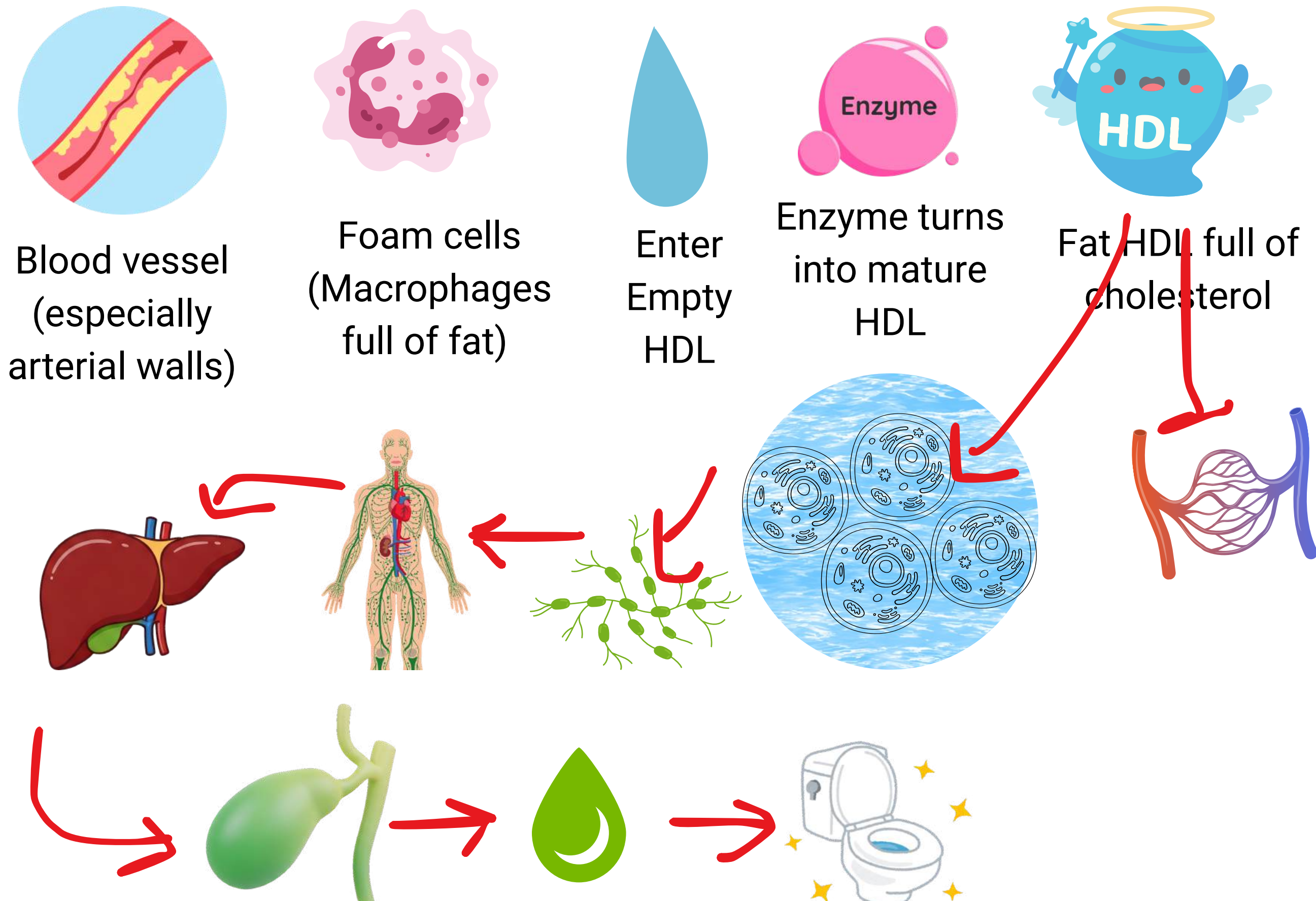




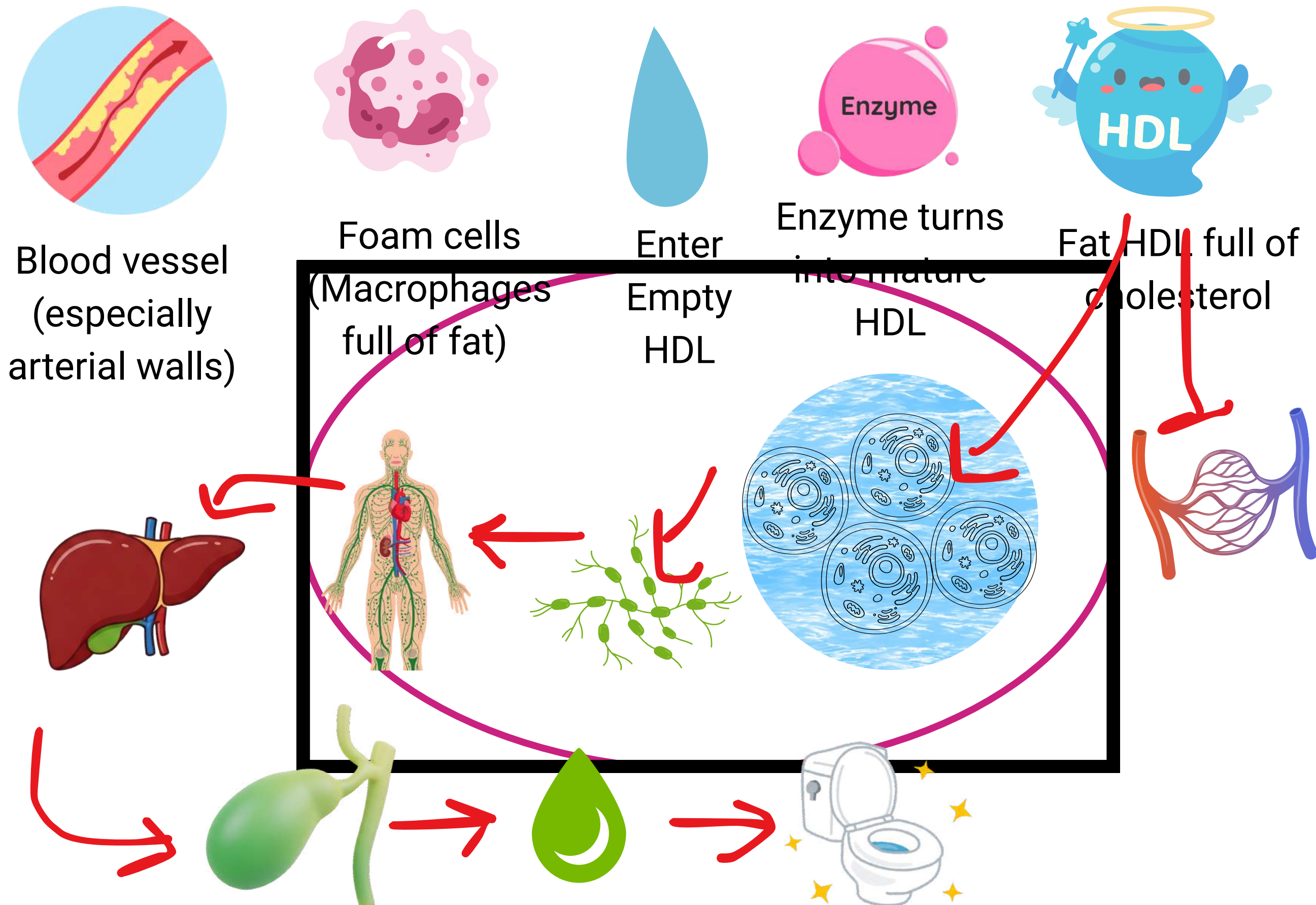
One of the main functions of the lymphatic system is
to remove excess cholesterol via
reverse cholesterol transport

Kim SH et al. Postoperative cholesterol changes as early predictors of breast cancer-related lymphedema: a retrospective cohort study. Breast Cancer 2025 May;32(3):520–28.

What is Reverse Cholesterol Transport?

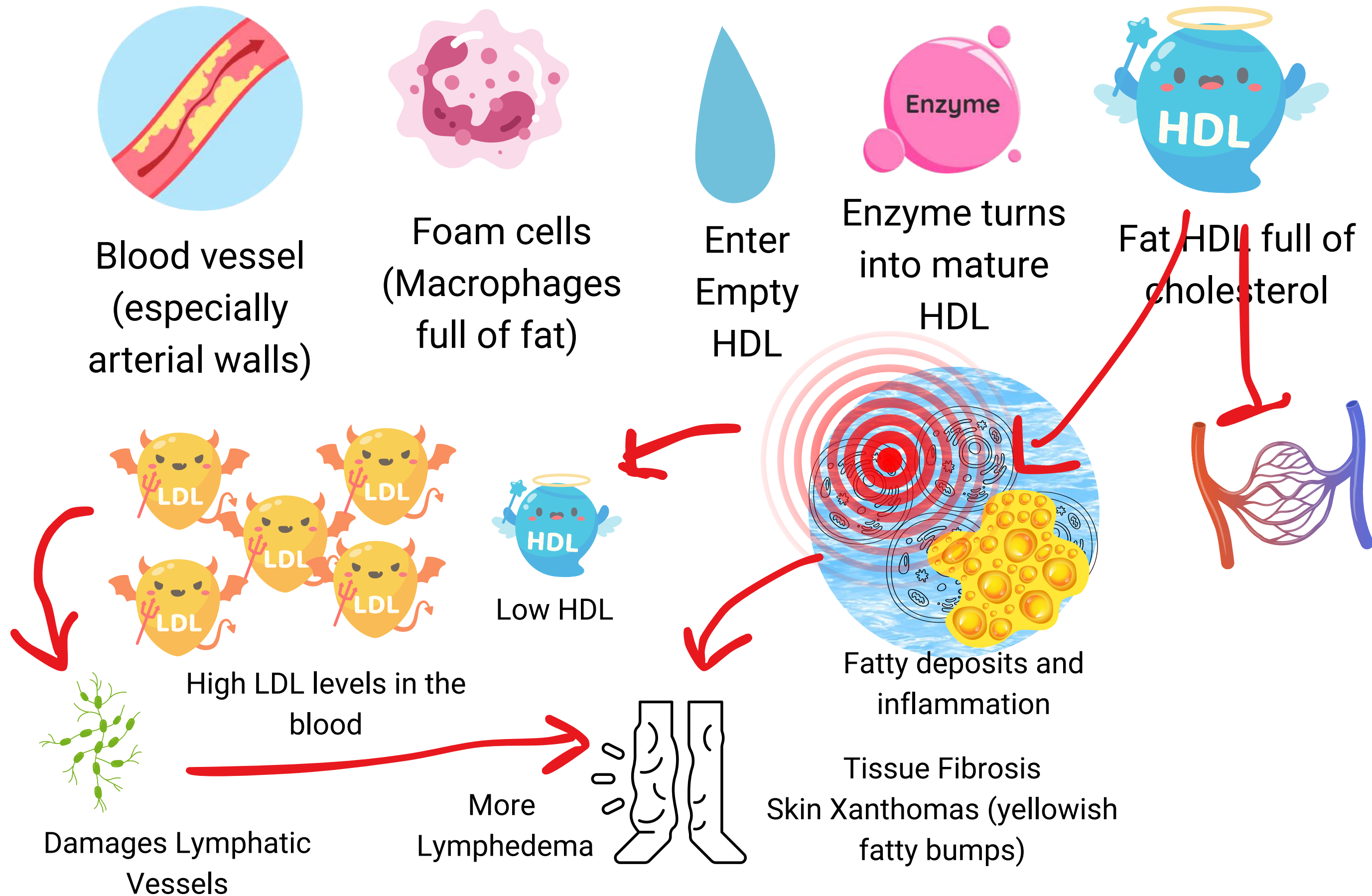


What is Reverse Cholesterol Transport?



What Happens in Lymphedema?

Huang LH, Elvington A, Randolph GJ. The role of the lymphatic system in cholesterol transport. Front Pharmacol. 2015 Sep 2;6:182.



Author, Year	Participants/inclusion criteria	Key Findings
Wang, 2024	1,476 post-surgery BC	• Pre-hospitalization high fat diet were associated with lymphedema HR = 2.52
Kim, 2025	• 906 breast cancer patients • Underwent surgery for their cancer (partial or total mastectomy) followed by chemotherapy	• A rise in HDL levels was associated with a reduced risk of developing lymphedema (OR 0.94) • A rise in TG there was an increase in lymphedema risk OR 1.468 • After adjusting for ALND, number of nodes, radiation, chol-lowering drugs, BMI and chemo OR 1.658 • No significant associations with total cholesterol or LDL • The use of cholesterol-lowering drugs was associated with a reduced risk of developing lymphedema OR 0.34
Ryu, 2016	• 60 women who had breast cancer • Surgery with either ◦ SLNB ◦ ALND	• Total-C, HDL and TG were not different among the groups • LDL was modestly elevated in those with ALND+lymphedema (but within normal limits)(not significant) • Atherogenic index (AI) was significantly higher in the ALND + lymphedema group versus the other two groups • Levels of fatty acids in the lymphedema group: ◦ Elevated omega-3 fatty acids ◦ Elevated omega-6 fatty acids ◦ Reduced saturated fatty acids ◦ Reduced MUFA (omega-9) fatty acids ◦ Elevated AA/EPA ratio • Delta-5 and delta-6 desaturase activity was increased



“Postoperative changes in HDL and TG levels are significantly associated with the risk of developing lymphedema, suggesting their potential role as early indicators.”





Potential Role of Medical Nutrition Therapy for Lymphedema Risk Reduction

- Weight Management
- Cholesterol-lowering
- Anti-inflammatory dietary fat ratio
- BP management/DASH diet
- Ensuring sufficient Vitamin D
- Nutrition support of GLP-1 use
- Nutrition support for insulin resistance
- Anti-inflammatory dietary pattern

Resources

Jean LaMantia RD
DIETITIAN • AUTHOR • SPEAKER

- Books, blog, webinars, 1:1 virtual counselling
- Free 15 minute consult
- www.jeanlamantia.com
- jean@jeanlamantia.com

