OPTIMISING NUTRITIONAL CARE IN OLDER PEOPLE

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Chair UK panel - Managing Adult Disease-Related Malnutrition in the Community

Geriatric Medicine Webinar November 2021

DISCLOSURES

- Unrestricted educational grant provided by Nutricia Medical to support the work of the National panel on ‘Managing Adult Malnutrition in the Community’

- Honoraria received from Fresenius-Kabi, Nutricia, Abbott, Danone, Nestle for presentations within scientific symposia or for Charing / Facilitating educational events

A FLAVOUR OF WHAT IS TO COME….

- The role of diet in ageing
- The prevalence, impact and relationship between malnutrition, frailty and sarcopenia
- Malnutrition - why older people and those with chronic disease are vulnerable
- Understand how to screen for malnutrition risk and complete a nutrition assessment
- Provide insights into practical based strategies for treatment
- Encourage action to integrate nutrition into pathways of care including proactive identification and management of malnutrition

THE ROLE OF DIET QUALITY IN HEALTHY AGEING

n= 1300

- Higher diet quality was prospectively associated with better quality of life and functional ability - observed over 5 years, independent of potential confounders.
- Recommendations: Targeted intervention strategies that modify dietary practices of the ageing population have the capacity to preserve general well-being and physical functioning or delay deterioration.

Mediterranean Diet Pyramid

Gopinath et al, **2014** J Acad Nutr Diet. 2014;114:220-229.

FOOD IS MORE THAN NUTRIENTS

‘Nutrition and its effective use is such an important part of the care pathway, It is integral to how *we live, each and every day, from sustenance to companionship’*

John Davies - Chief Exec, Dorothy House Hospice

Good nutrition and social interactions can maintain independence, reduce isolation and improve cognition.

1. Shatenstein et al, 2012 Experimental Gerontology
2. Malnutrition Task Force http://www.malnutritiontaskforce.org.uk

COMMUNITY MEAL SERVICES (HERTFORDSHIRE STUDY) - PROVIDING MORE THAN FOOD

Client benefits

- ✓ improved health
- ✓ felt happier
- ✓ felt safer
- ✓ more secure
- ✓ increased independence
- ✓ stayed out of residential care

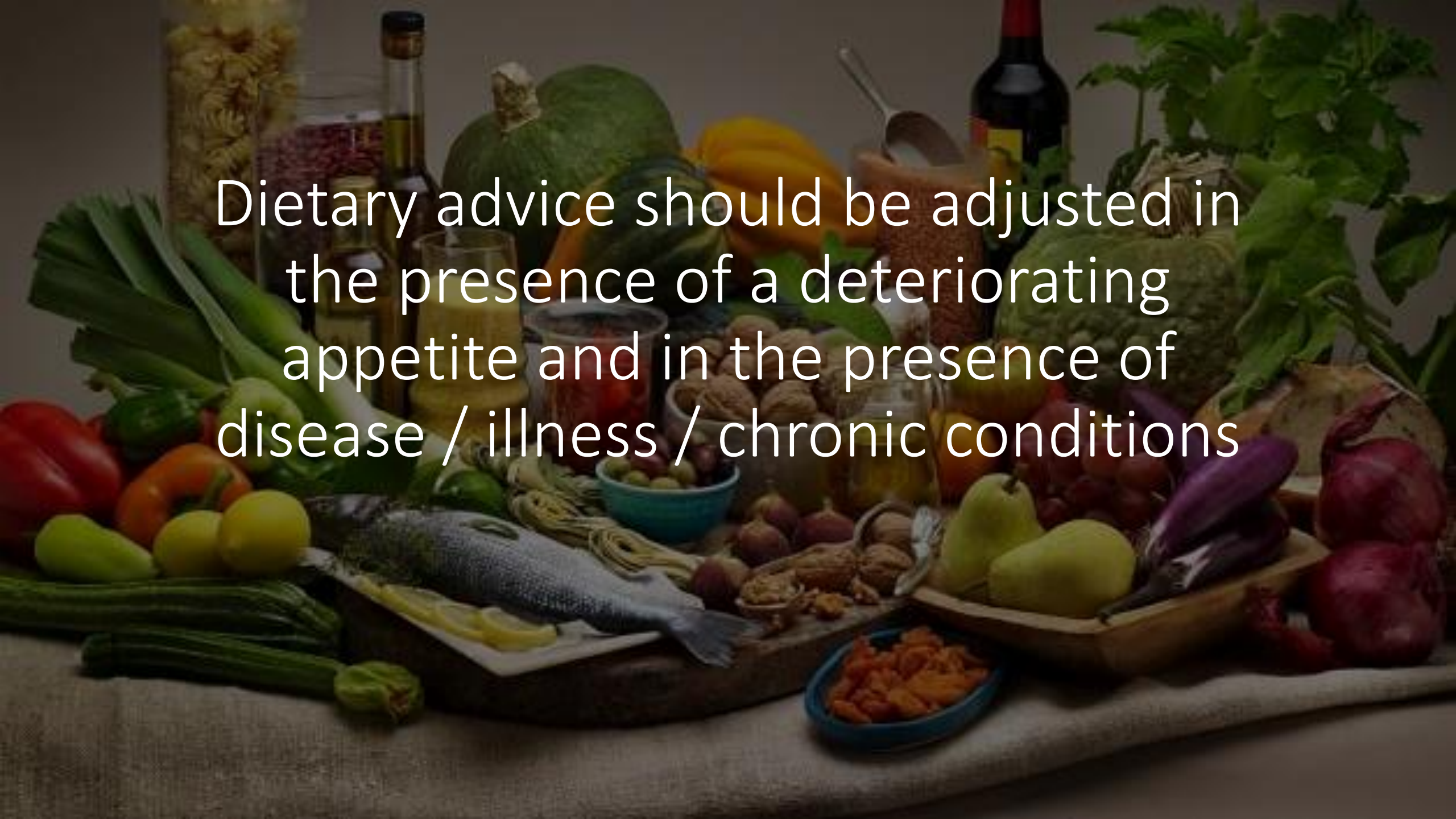
Carer benefits

- ✓increased ability to work
- ✓more leisure time
- ✓less stress
- ✓improved relationships with their own family and the person they care for.

ROI - The analysis calculated that, for every £1 invested in HCM, the likely social value created through these outcomes is ~ £5.28 (range from £4.42 to £6.10)

DO OLDER PEOPLE RECEIVE THE RIGHT MESSAGES ON DIET & NUTRITION?

- Good nutrition can promote healthy ageing and help to combat chronic disease
- Multimorbidity is a growing issue
- Older people are at risk of under-nutrition, this can be a cause and a consequence of illness.
- Older people services and partner agencies with a remit for older people's health should be provided appropriate messages concerning nutrition in later life e.g. putting public health messages into context


Dietary advice should be adjusted in the presence of a deteriorating appetite and in the presence of disease / illness / chronic conditions

MALNUTRITION (UNDERNUTRITION), FRAILTY, SARCOPENIA

DEFINITIONS

Malnutrition

A state of nutrition in which a deficiency, excess or imbalance of energy, protein, and other nutrients causes measurable **adverse effects** on tissue/body **form** (body shape, size, and composition) and **function**, and **clinical outcome**.[1]

Frailty

A clinically recognisable state of increased vulnerability resulting from aging-associated decline in reserve and function across multiple physiologic systems such that the ability to cope with everyday or acute stressors is compromised.[2]

1. Elia M. Detection and management of undernutrition in the community. A report by The Malnutrition Advisory Group (A standing committee of The British Association for Parenteral and Enteral Nutrition). 2000. Maidenhead, BAPEN.
2. Qian-Li Xue The Frailty Syndrome: Definition and Natural History Clin Geriatr Med. 2011 February ; 27(1): 1–15. doi:10.1016/j.cger.2010.08.009.

PREVALENCE OF MALNUTRITION

Refs: Russell C, Elia M. Nutrition screening survey and audit of adults on admission to hospitals, care homes and mental health units. 2011. Redditch, BAPEN.

1 in 10 older people*

are suffering from or are at risk of

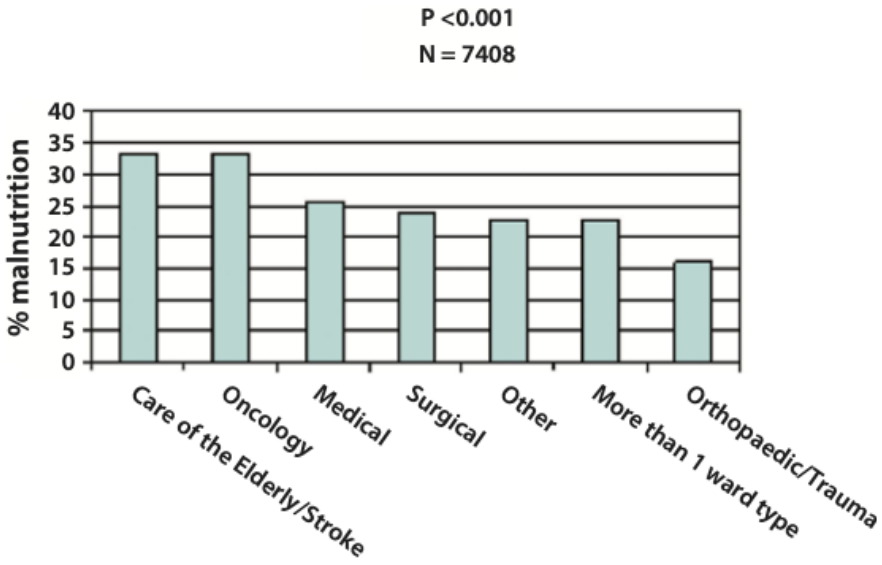
malnutrition

MALNUTRITION TASK FORCE

www.smallappetite.org.uk

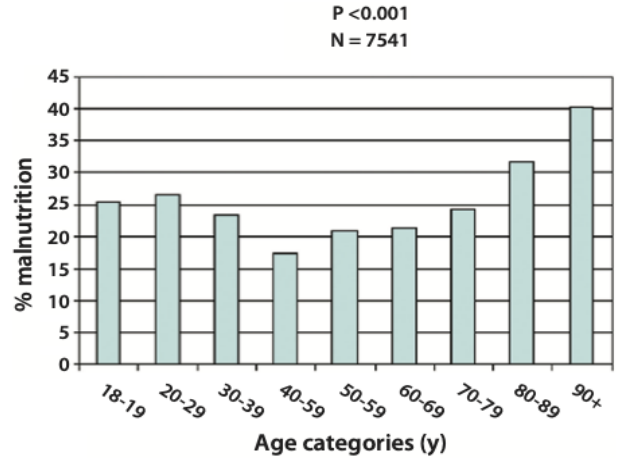
*over 65 in England and Wales (2009)

'MALNUTRITION' RISK ACCORDING TO TYPE OF WARD

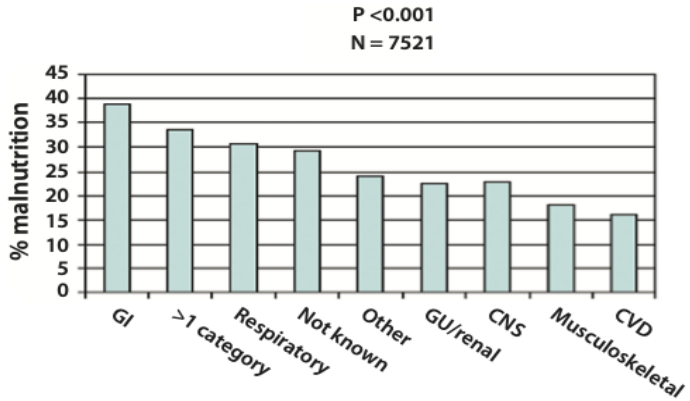


'Malnutrition' risk according to age

A substantial malnutrition risk was present at all ages.



Malnutrition' according to diagnostic category



A SIZEABLE PROBLEM - DIETITIANS CAN'T TACKLE IT ALONE

- There are >3 million people malnourished or at risk of malnutrition in the UK, 93% are in the community [1,2]
- Dietitians (n=11,000) are uniquely placed to manage malnutrition <u>but</u> waiting times may be up to 18 weeks in the community[2]

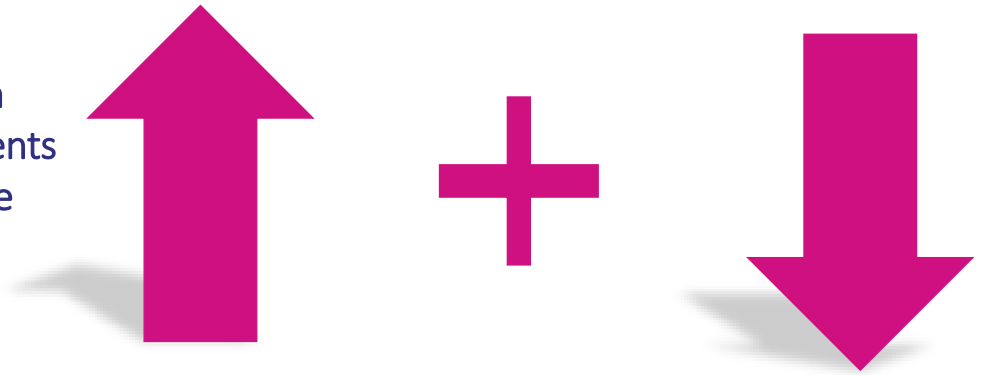
1. Elia M and Russell CA. Combating Malnutrition: Recommendations for Action. Report from the advisory group on malnutrition, led by BAPEN. 2009.
2. Stratton et al. Managing malnutrition to improve lives and save money. BAPEN Report. 2018.
3. Guide to NHS waiting times in England. 2019. - https://www.nhs.uk/using-the-nhs/nhs-services/hospitals/guide-to-nhs-waiting-times-in-england/

FRAILTY AND MALNUTRITION - OVERLAPPING SYNDROMES SHARING CENTRAL FEATURES[1,2,3]

64% of frail elderly adults are malnourished, compared with just 2% of fit elderly adults.

As patients age:[4]

Protein requirements increase



Physical activity, appetite and dietary intake decrease

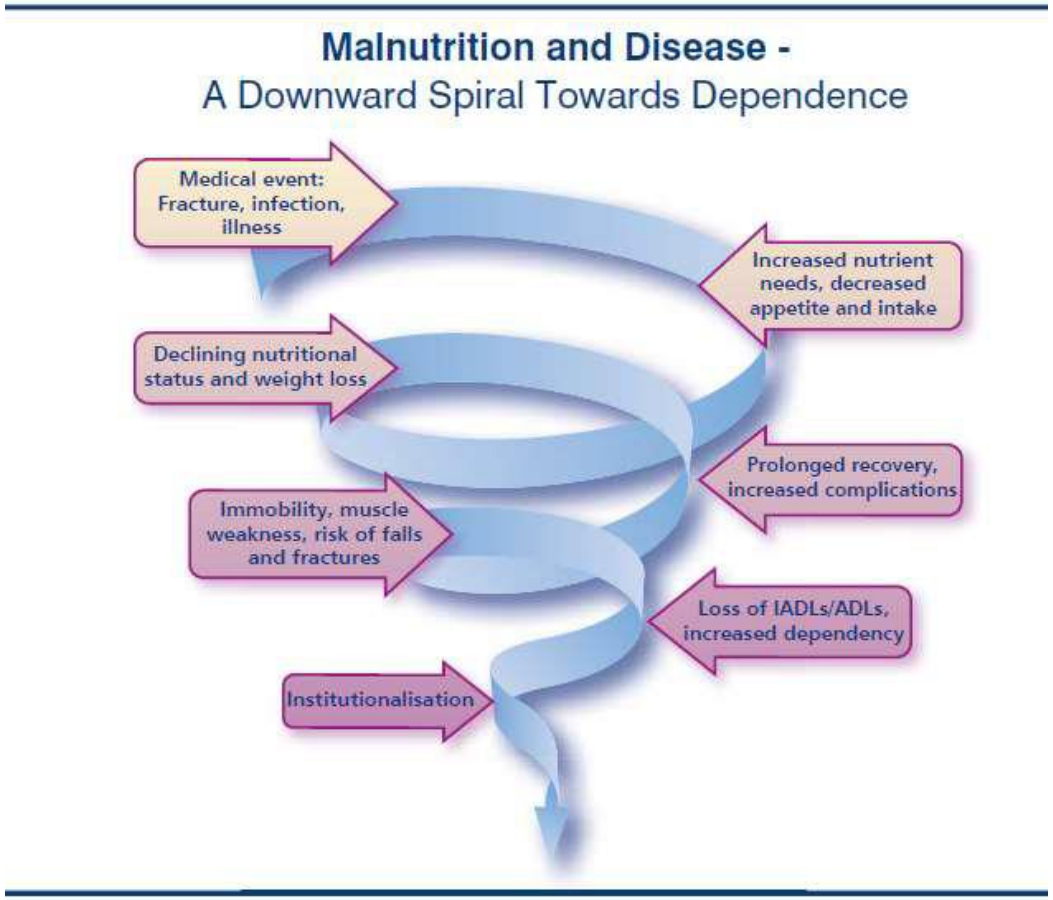
Net reduction in protein synthesis leads to loss of muscle mass, strength and reduced function

Central features of weight loss, reduced muscle mass, strength and function[1]

1. Artaza-Artabe et al Maturitas, 2016: 93, 89–99
2. Boulos C, et al. Malnutrition and frailty in community dwelling older adults living in a rural setting. *Clinical Nutrition.* 2016:35(1);138-143
3. Laur CV et al. Malnutrition or frailty? Overlap and evidence gaps in the diagnosis and treatment of frailty and malnutrition. Applied Physiology, Nutrition, and Metabolism. 2017:42(5);449-458.
4. Bauer et al. Evidence-Based Recommendations for Optimal Dietary Protein Intake in Older People: A Position Paper From the PROT-AGE Study Group. JAMDA. 2013;14:542-559

WHY IS MALNUTRITION AND FRAILTY SO PREVALENT IN THE PRESENCE OF DISEASE AND IN AGEING?

- Disease itself may interrupt or reduce intake
- Intake may be inadequate compared to requirements (malabsorption, increased energy expenditure)
- Anorexia / loss of appetite occurs in ageing and in disease
- The ability to source and prepare meals may diminish (including the motivation)
- Protein requirements increase at a time intake often declines

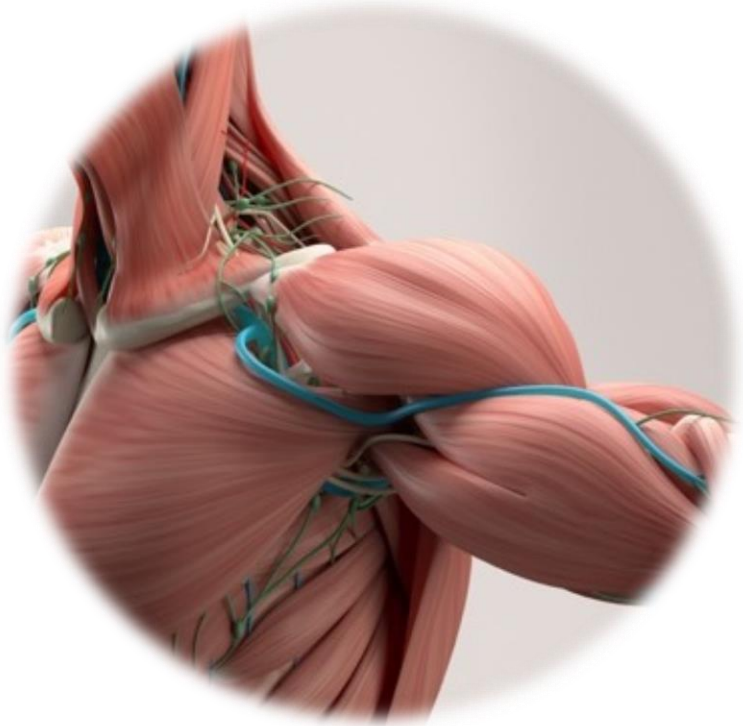


SARCOPENIA – RISING UP THE AGENDA

- Sarcopenia is a condition characterised by loss of muscle mass and strength

- Sarcopenia after injury or insult e.g. stroke, is multifactorial:
  - Systemic inflammatory response causes both catabolism and degradation of fat-free body mass, namely muscle tissue/fats
  - Further compounded by immobility, bedrest, insulin resistance associated with diabetes

- Ten days' bed rest in 'healthy adults' leads to:
  - 30% reduction in muscle protein synthesis
  - 6% reduction in leg mass
  - 16% reduction in muscle strength



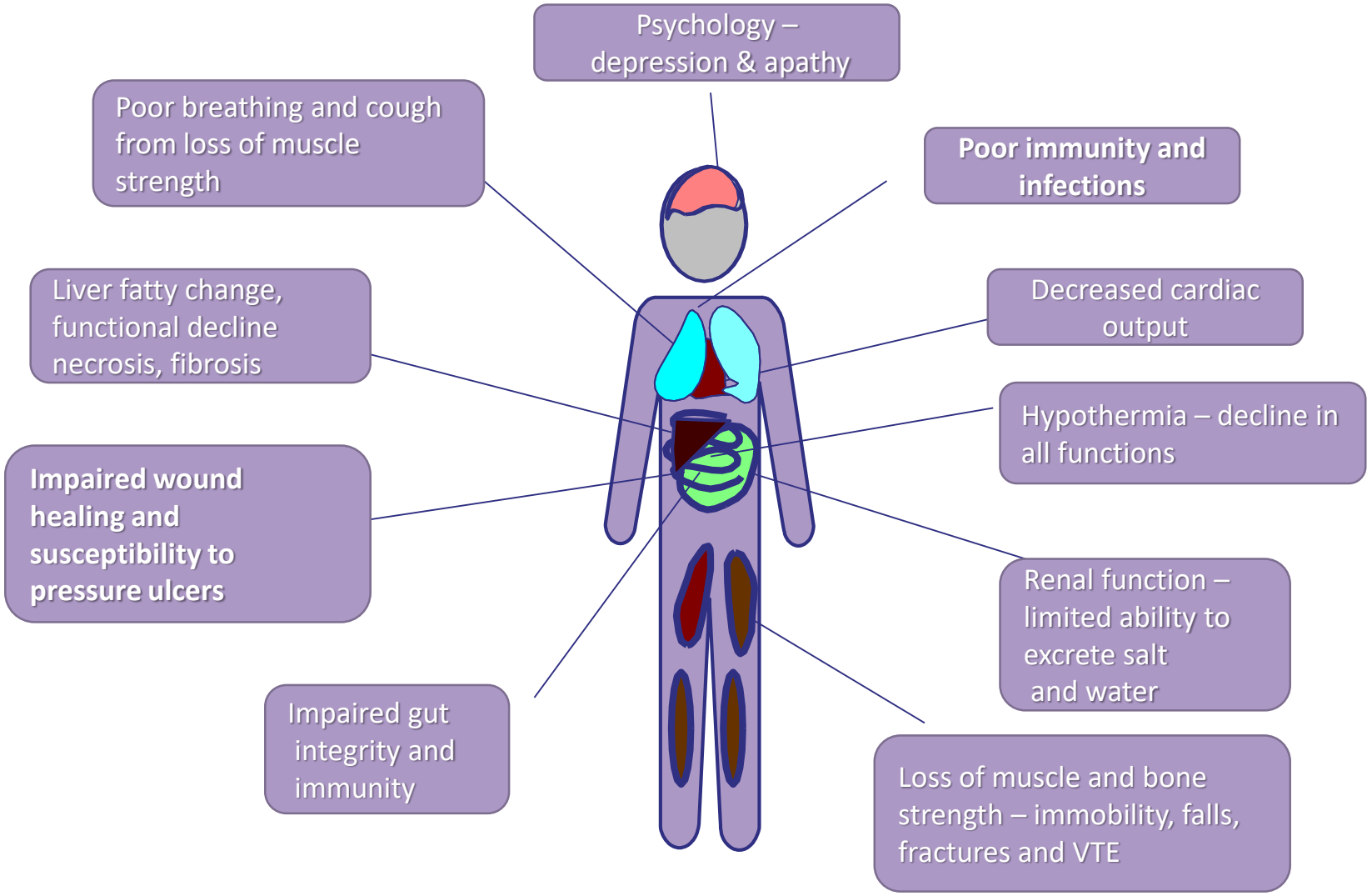
References: *1. Su, et al. 2020. 2. Rosenberg IH. Clin Geriatric Medicine. 2011. 3. Scherbakov, et al. 2011. 4. Arasaki K, et al. Journal of the Neurological Sciences 2006; 27–32*

FACTORS CONTRIBUTING TO DEVELOPMENT OF AND INDICATIVE OF PRESENCE OF MALNUTRITION

Chronic disease and increasing age	Loneliness, isolation, bereavement	Reduced appetite / interest in food	Only eating part of meals	Limited diet Low vitamin and mineral status
Swallowing problems	Diarrhoea or vomiting	Frailty	Ill-fitting dentures / problems with chewing or swallowing	Recurrent infections
Delayed wound healing / thin, fragile skin	Frequent falling	Low BMI / looking visibly thin / bones visible, loose clothing)	Feeling tired / cold / low mood	Dental issues

CONSEQUENCES OF MALNUTRITION

ADVERSE CONSEQUENCES OF MALNUTRITION CAN OCCUR WITHIN DAYS



Ref: Saunders J , Smith T. Malnutrition Causes and Consequences. Clinical Medicine 2010 6:624-627

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ECONOMIC CONSEQUENCES OF MALNUTRITION

Annual cost per malnourished subject
£7,408

Annual cost per non-malnourished subject
£2,155

Scaled up annual cost of malnutrition across the UK
£23.5 bn

The 'MUST' Report. Nutrition Screening for adults: a multidisciplinary responsibility. Elia M, editor. 2003. Redditch UK, BAPEN. Elia M and NIHR (2015) Economic report; Stratton RJ, et al (2006) Br J Nutr 2006; 95(2): 325-330; Stratton et al. BAPEN Report (2018). Managing malnutrition to improve lives and save money.

COSTS INCURRED AS A CONSEQUENCE OF MALNUTRITION ARE DUE TO:

- Poor wound healing
- Increased susceptibility to infection
- Impaired mental and physical function
- Reduced activities of daily living (ADL)
- Increased readmissions
- More GP visits
- Increased length of hospital stay (> 30%)
- Greater likelihood of admission to care homes

Pirlich M et al C et al. Clin Nutr 2006; 25(4):563-572; Cansado P, Ravasco P, Camilo M. J Nutr Health Aging 2009; 13(2):159-164; de LD, Lopez GA. Eur J Intern Med 2006; 17(8):556-560; Planas M et al , Clin Nutr 2004; 23(5):1016-1024; Elia M, Stratton RJ, Russell C, Green CJ, Pang F. The cost of disease-related malnutrition in the UK and economic considerations for the use of oral nutritional supplements (ONS) in adults. 2005. Redditch, BAPEN; Elia M and NIHR (2015) Economic report

WHERE DO WE FOCUS OUR EFFORTS?

IS TACKLING MALNUTRITION IN HOSPITAL ALONE EFFECTIVE?

Average length of stay for all causes in the **UK** = 6 days

Source: OECD (2021), Length of hospital stay (indicator). doi: 10.1787/8dda6b7a-en
(Accessed on 03 November 2021)

INTAKES OF ENERGY AND PROTEIN ON A HOSPITAL WARD (STROKE & FALLS)

Group receiving ONS	Mean energy diet alone (kcals)	Mean energy provided by ONS (kcals)	Mean total daily energy consumed (kcals)
Normal diet	982	264	1,245
Texture-modified	703	295	998

Mean daily protein intake <60% of estimated requirements

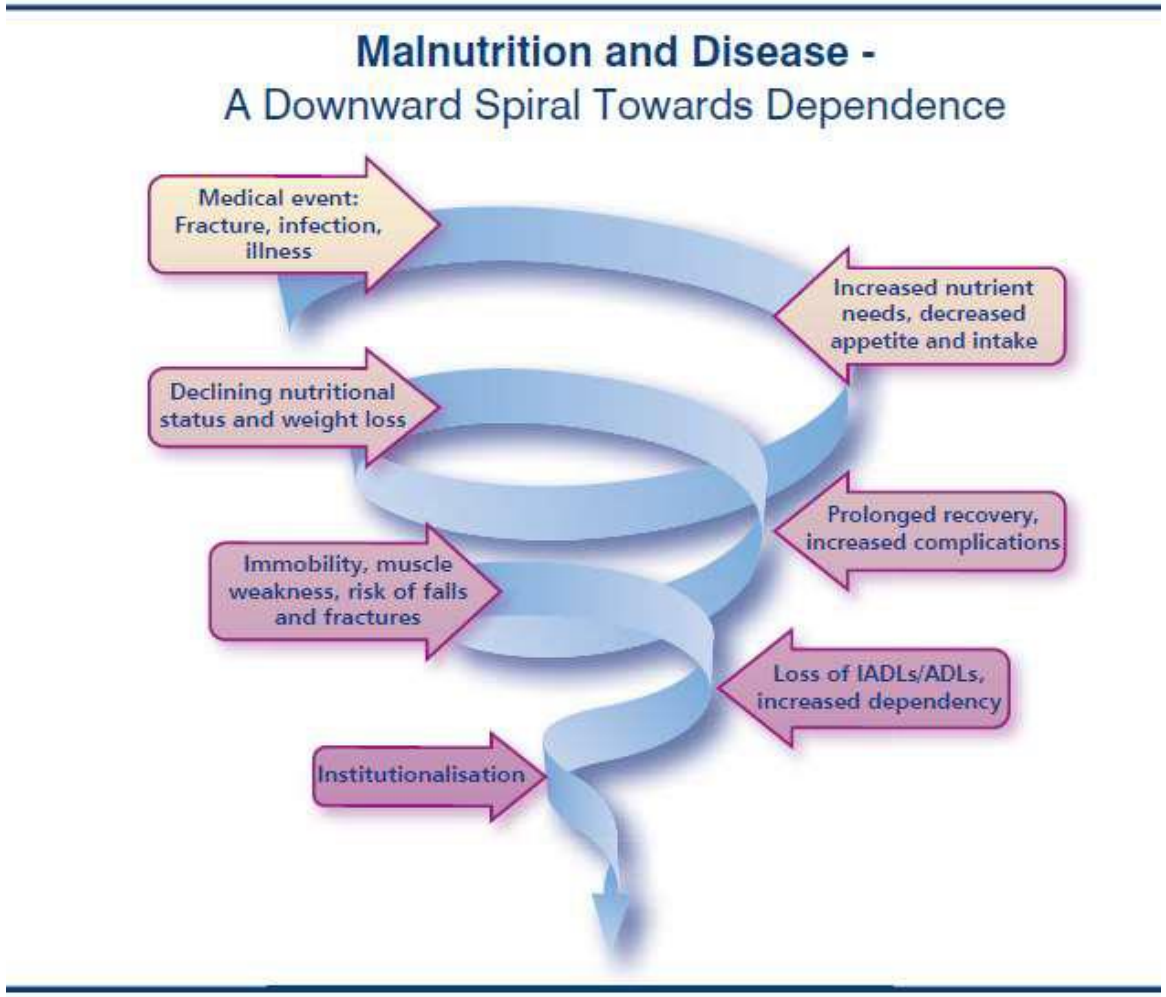
Reference: *Wright, et al. J Hum Nutr Diet. 2005; 18: 213-9.*

93% OF MALNUTRITION EXISTS IN THE COMMUNITY.
IF WE FOCUS OUR ENERGY TACKLING IT IN HOSPITALS…

…we won't fix the problem.

- Malnutrition develops insidiously in the community for many weeks before hospital admission.
- Stopping nutrition support at discharge risks prematurely discontinuing care before anabolic phase of recovery reached
- Nutrition rehabilitation may be required for months beyond the hospital episode.

PLUS….THERE IS A TREND TO MANAGE MANY LONG-TERM CONDITIONS IN PRIMARY CARE



- Proactive management of malnutrition in primary care including dietary advice and <u>appropriate</u> ONS prescribing according to risk and patient need could help save ~£123k per 100,000 people each year[1,3]

1. Elia M and Russell CA. Combating Malnutrition: Recommendations for Action. Report from the advisory group on malnutrition, led by BAPEN. 2009. 2. Guide to NHS waiting times in England. 2019. - https://www.nhs.uk/using-the-nhs/nhs-services/hospitals/guide-to-nhs-waiting-times-in-england/. 3. Stratton et al. Managing malnutrition to improve lives and save money. BAPEN Report. 2018.

WHAT CAN YOU DO OR ENCOURAGE OTHERS TO DO?

As patients transition form one care setting to another, update and communicate care plans and promote the role of nutritional care

RECOGNISE AND ACKNOWLEDGE THAT PATIENTS AND THEIR FAMILIES WANT TO KNOW ABOUT DIET AND NUTRITION

Patients Association /GOV.UK research 2011
Holdoway A (2020) Doctoral Thesis. University of Bath.

NUTRITION SCREENING AND ASSESSMENT

CAN WE RELY ON OBSERVATION ONLY?
LOOKS CAN BE DECEPTIVE

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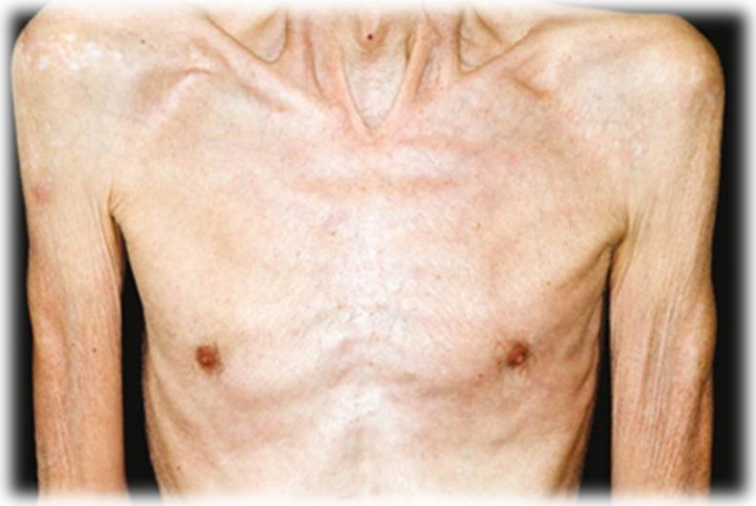


Overweight but sarcopenic

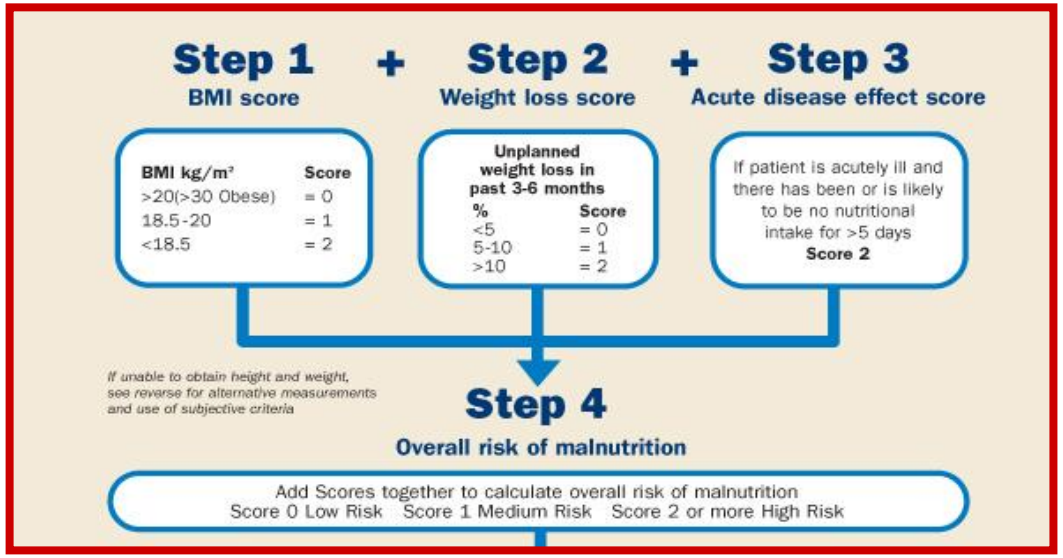
<u>A high BMI can mask malnutrition</u>

Validated screening tools should be utilised

Screening should be followed by assessment in those 'at risk'

NICE CG32 2006, NICE QS24 2012; Thibault & Pichard, 2012 Nutrition & Metabolism;60:6–16

MALNUTRITION SCREENING



NICE CG32 (2006) recommends:

- people in care settings (including inpatients, outpatients, care homes and GP surgeries) are screened for the risk of malnutrition using a validated screening tool

and NICE QS24 (2012) emphasises the need for all care services to:

- take responsibility for the identification of people at risk of malnutrition
- provide nutritional support for everyone who needs it
- take an integrated approach to the provision of services

SCREENING CATEGORISES PATIENTS ACCORDING TO RISK
- LOW RISK MEDIUM RISK HIGH RISK -

Self screening and self management: https://www.malnutritionselfscreening.org/
https://www.nhs.uk/live-well/healthy-weight/bmi-calculator/
https://www.patients-association.org.uk/patients-association-nutrition-checklist-toolkit

1. The 'MUST' Report. Nutrition Screening for adults: a multidisciplinary responsibility. Elia M, editor. 2003. Redditch UK, BAPEN https://www.bapen.org.uk/pdfs/must/must_full.pdf

ASSESSING NUTRITIONAL STATUS & FUNCTION- INITIATING A CONVERSATION ABOUT NUTRITION (REMOTE CONSULTATIONS MAY RELY ON SELF-REPORTED OR SUBJECTIVE MEASURES)

- **Useful questions to ask (can be done remotely):**
  - Current weight? Usual weight? Height (use recall)?
  - Has weight changed in the last few weeks or months? How are your clothes and jewellery (rings/watches) fitting?
  - How is your appetite lately? What foods are you managing? Do you need help to shop and prepare meals?
  - What is your patient's function / activities of daily living and has that changed, consider using frailty score e.g. SARC-F, functional tests e.g. sit to stand / timed get up and go / walking tests
  - Patient / carer concerns
  - Asking about factors that indicate risk…….

Useful links guiding use of subjective criteria in assessing malnutrition risk

- Patients Association checklist https://www.patients-association.org.uk/patients-association-nutrition-checklist-toolkit
- BAPEN MAG https://www.bapen.org.uk/pdfs/covid-19/covid-mag-update-may-2020.pdf

WHAT NEEDS TO BE ON YOUR RADAR AS AN INDICATOR OF MALNUTRITION RISK

Reduced appetite / interest in food	Only eating part of meals	Unintended weight loss	Low BMI / looking visibly thin (e.g. bones visible, sunken eyes)	Low vitamin and mineral status
Chronic disease and increasing age	Swallowing problems	Diarrhoea or vomiting	Frailty	Loose clothing
Ill-fitting dentures / problems with chewing or swallowing	Recurrent infections	Delayed wound healing / thin, fragile skin	Frequent falling	Feeling tired / cold / low mood

KEY POINT: SCREENING IS THE STARTING POINT

IN THOSE IDENTIFIED AT MEDIUM OR HIGH RISK FOLLOW WITH

An **Assessment** – to establish the causes of malnutrition and contributory factors that could be treated

Consider who in the MDT might be best placed to do this – practice based pharmacists, practice nurse, district nurse, dietitians, care home staff

Create a care plan that is achievable and acceptable by the patient (and carers) and includes mutually agreed goals

A DETAILED NUTRITION / DIETETIC ASSESSMENT SHOULD COMPRISE CLINICAL HISTORY, PRESENCE OF DISEASE, WEIGHT CHANGE OVER TIME INCLUDING UNINTENTIONAL LOSS, DIET RECALL, MAKING CONNECTIONS BETWEEN PROBLEMS & SYMPTOMS.

COMBINED IT DETERMINES PRESENCE OF MALNUTRITION AND FACILITATES THE CREATION OF AN INDIVIDUALISED CARE PLAN

MANAGEMENT OF DISEASE-RELATED MALNUTRITION

Determine aims of treatment

Clinically and cost effective nutritional support can ...

- Improve nutritional intake
- Improved or maintain nutritional status
- Improve function (ADLs, grip strength)
- Improve clinical outcomes such as reduced complications, reduced mortality, reduced hospital readmission
- Reduce healthcare use and costs

TAKE INTO ACCOUNT WHAT MATTERS TO PATIENTS AND CARERS

Tolerance to treatment e.g. cancer

Recovery e.g. from surgery / injury / wound / pressure ulcer

Avoiding a hospital admission, reinfection, an acute exacerbation

Remaining independent, strong enough to go out / walk upstairs / sit in the garden.

Preservation of self and identity - social life, work, return to previous health status

Survival and living life as best as possible

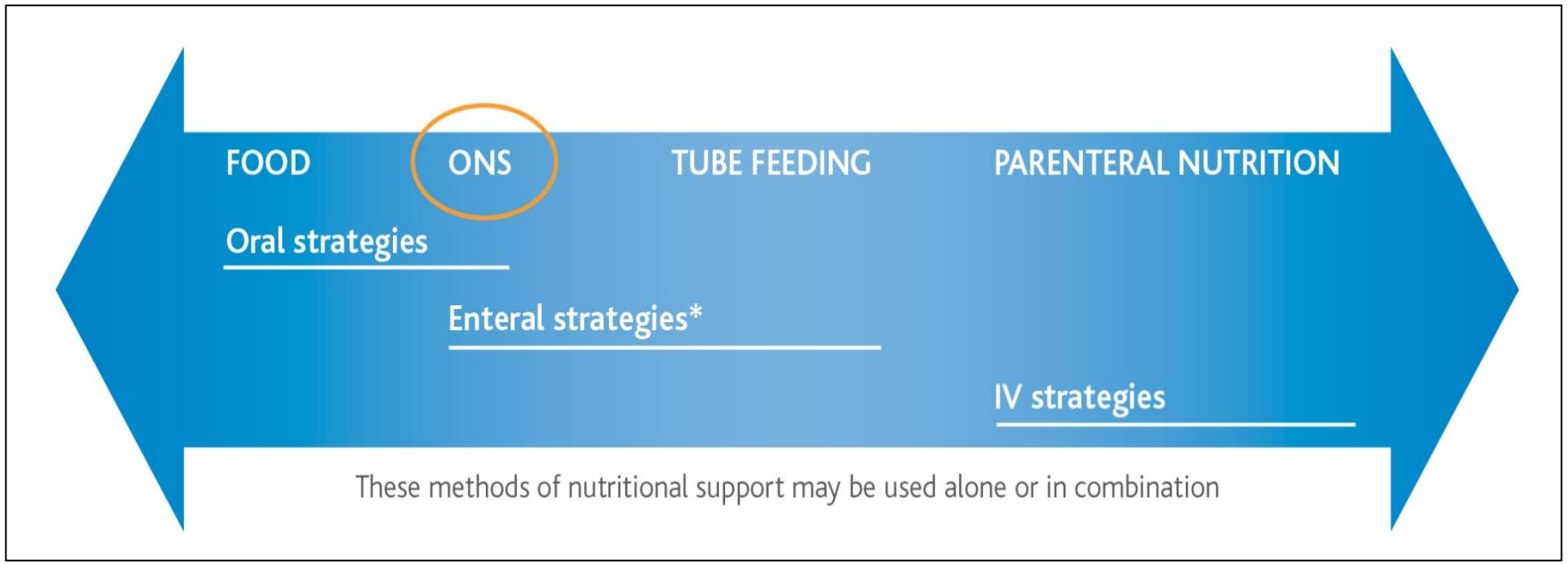
Holdoway A (2020) Doctoral Thesis. *The role of diet in palliative care as perceived by patients, carers and healthcare professionals.* University of Bath.

NUTRITIONAL SUPPORT SOLUTIONS (NICE CG32 2006)

HEALTHCARE PROFESSIONALS SHOULD CONSIDER ORAL NUTRITION SUPPORT TO IMPROVE NUTRITIONAL INTAKE FOR PEOPLE WHO CAN SWALLOW SAFELY AND ARE MALNOURISHED OR AT RISK OF MALNUTRITION (A-GRADE EVIDENCE).

- Feeding aids
- Texture modified diets
- Changed meal patterns – more frequent
- Fortified meals and drinks
- Dietary counselling
- Oral nutritional supplements (ONS) / vitamin and mineral supplements
- Tube feeding (NG / Gastrostomy) when oral intake inadequate
- Parenteral nutrition when gut non-functioning / partially functioning

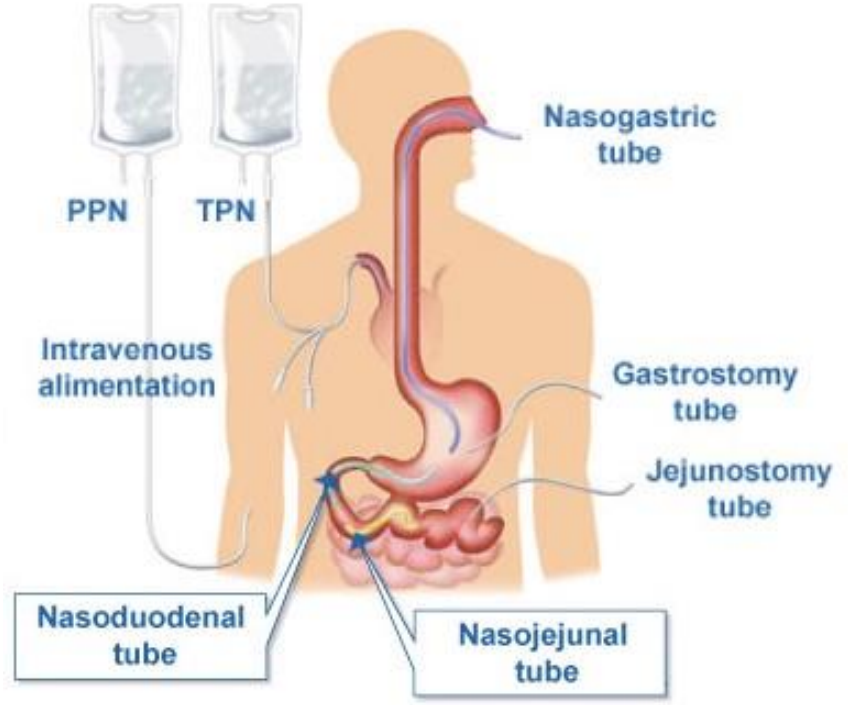
Treatment of undernutrition / malnutrition - A continuum of care

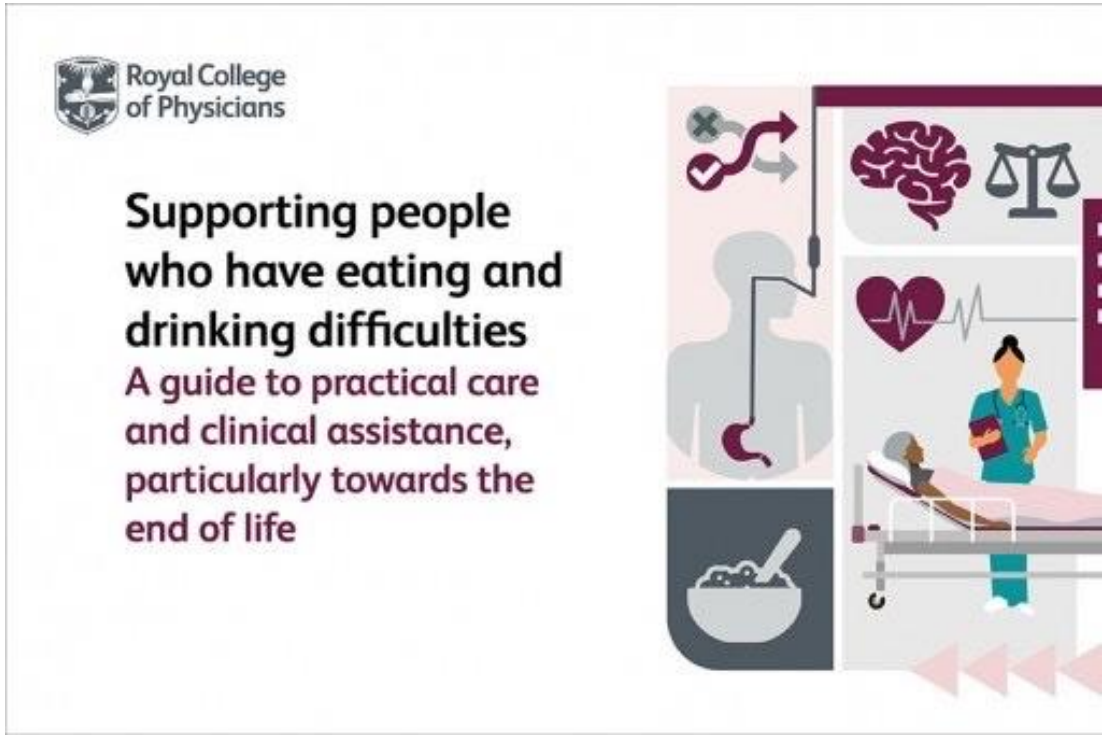


*Based on the ESPEN definition. Lochs H, Allison SP, Meier R, Pirlich M, Kondrup J, Schneider S et al. Introductory to the ESPEN Guidelines on Enteral Nutrition: Terminology, definitions and general topics. Clin Nutr 2006; 25(2):180-186.

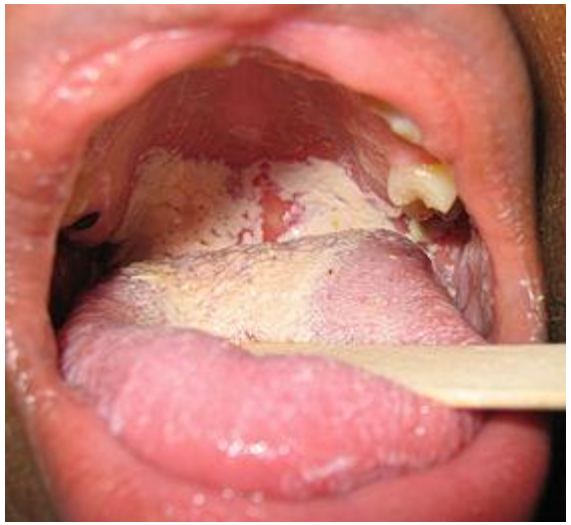
CLINICALLY ASSISTED NUTRITION AND HYDRATION (NUTRITION SUPPORT) CAN BE LIFE-SAVING

For more information on feeding decisions see https://www.rcplondon.ac.uk/projects/outputs/supporting-people-who-have-eating-and-drinking-difficulties





EXAMPLE:
EFFECT OF ORAL CANDIDA ON DIETARY INTAKES IN OLDER PEOPLE



- Affects up to 40% of older population
- High prevalence of hypozincaemia & Vit. C deficiency, inadequate energy and protein intakes[1]
- Those who responded to treatment increased dietary intake by day 30[1]
- Correct deficiencies and provide oral nutritional support whilst intake affected

1. Paillaud et al. BJN 2004; 92; 861-867

ORAL NUTRITION SUPPORT DIETARY ADVICE +/- ONS

November 21

ADDRESS UNDERLYING PROBLEMS AFFECTING INTAKE, APPETITE & ENJOYMENT OF FOOD – FIX THE FIXABLE

Taste changes	Early satiety, poor appetite	Anxiety, depression	Physical issues e.g. dysphagia, arthritis
Bowel issues	Side effects of medication, poly-pharmacy	Dentition/Chewing & swallowing problems	Knowledge, cooking skills
Loss of interest, bereavement	Loneliness, isolation	Finances	Lack of support

APPLY A DOSE OF REALISM IN PATIENTS WHO ARE UNWELL

Deficit in those losing weight unintentionally approx. 400 – 1000 Calories daily

- What is the likely increase in oral intake diet alone?
- Protein intakes often considerably below requirements
- Is a 'food based' approach sufficient to replete lost stores and prevent further weight loss?
- 2/3 Dietitians use a combined approach in practice (dietary advice + ONS[1])

1. Ref: Gibbs, M, Drey, N & Baldwin, C 2018, 'Oral nutrition support interventions for patients who are malnourished or at risk of malnutrition: a survey of clinical practice amongst UK dietitians', *Journal of Human Nutrition and Dietetics*. https://doi.org/10.1111/jhn.12599

DEALING WITH EATING AND DRINKING DIFFICULTIES SHOULD ADDRESS THE MEANING OF FOOD

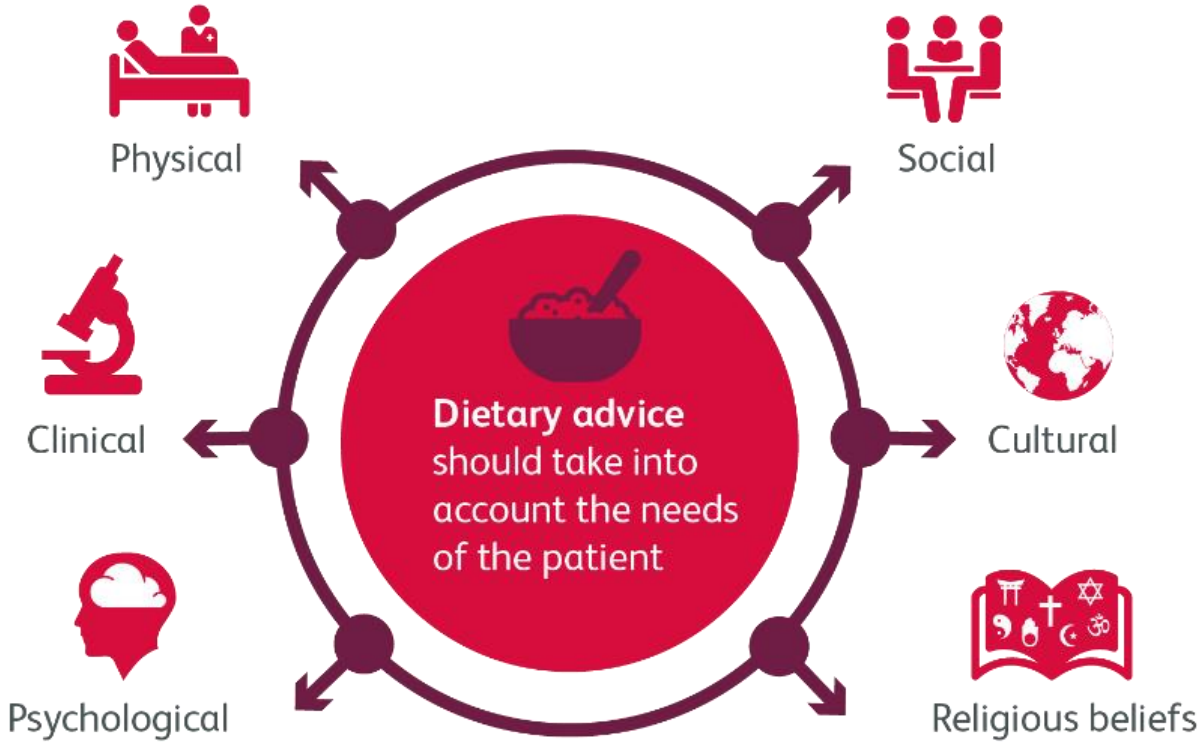


Fig 3 –p24 Supporting people who have eating and drinking difficulties (2021) RCP

https://www.rcplondon.ac.uk/projects/outputs/supporting-people-who-have-eating-and-drinking-difficulties

PROTEIN REQUIREMENTS ARE HIGHER IN OLDER ADULTS AND THOSE WHO ARE UNWELL

	Protein Requirements
Healthy	0.8 g per kg body weight per day
Older people, malnourished or at risk due to acute/chronic condition	1.2 – 1.5 g per kg body weight per day
Severe illness/injury	>1.5 g per kg body weight per day

Deutz NE, et al. (2014). Protein intake and exercise for optimal muscle function with aging: Recommendations from the ESPEN Group. Clinical Nutrition 33

In frail older people and in chronic disease the amount of protein required per meal = 20 - 30 grams x 3

Deutz NE, et al. (2014). Protein intake and exercise for optimal muscle function with aging: Recommendations from the ESPEN Group. Clin Nutr 33 ESPEN guidance 2015, 2017

Large

or

100g

or

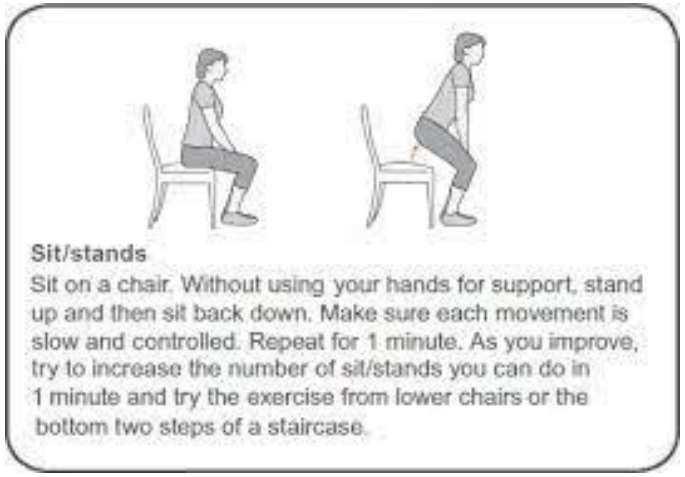
500ml

or

80g

EXAMPLES OF 20 GRAMS OF PROTEIN

Oral Nutritio Supple



ENSURE ACCESS TO OR PROVIDE ADVICE AND RESOURCES ON <u>PROTEIN</u> RICH FOODS, NOURISHING DRINKS AND ONS, COMBINED WITH ADVICE ON RESISTANCE ACTIVITY

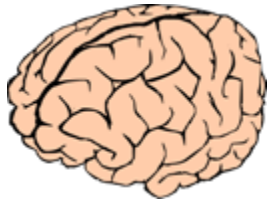
SEE IDEAS AT:

https://www.malnutritionpathway.co.uk/proteinfoods

DYSPHAGIA IS HIGHLY PREVALENT IN SOME CONDITIONS AND MAY REQUIRE TEXTURE MODIFIED DIETS AND MODIFIED FLUIDS

Neurological

- CVA
- PD
- MS
- Dementia



Obstructive

- Oral cancer
- Radiotherapy
- GORD
- Thrush

Muscular

- Scleroderma
- Achalasia

Other

- Ageing
- **COPD**

For guidance and resources on dysphagia and texture modified diets visit:
https://www.malnutritionpathway.co.uk/dysphagia.pdf
https://iddsi.org/Resources

FORTIFICATION: ADDING EXTRA PROTEIN, FATS OR SUGARS TO FOOD AND DRINK

EXAMPLE: ADDING MILK POWDER TO MILK

- ensure it does not adversely affect the taste / texture of food
- check advice is feasible, practical and acceptable
- consider special meal providers
- consider need for vitamin and mineral supplement [1,2,3]

1. NICE Guidance CG32 (2006 & 2017)
2. Stratton RJ. Malnutrition: another health inequality? Proc Nutr Soc 2007; 66(4):522-529.
3. Calder PC Nutrition, Immunity and COVID-19 *BMJ Nutrition, Prevention & Health* 2020

PERCENTAGE OF OLDER ADULTS IN THE UK WITH MICRONUTRIENT INTAKES BELOW THE REFERENCE NUTRIENT INTAKE*

	Free-living (*n* 540–735)†		Institutions (*n* 93–319)†		At risk of malnutrition (all settings; *n* 55–80)	
Micronutrient	Men	Women	Men	Women	Men	Women
Minerals						
K	85	97	94	98	91	94
Ca	35	57	22	28	55	49
Mg	72	87	90	96	87	83
Fe	27	54	41	62	58	50
Cu	72	89	86	91	82	86
Zn	62	59	65	48	82	53
I	30	52	28	42	47	49
Vitamins						
Vitamin A	43	44	30	23	53	40
Vitamin D	93	96	98	98	96	96
Thiamin	9	11	17	13	18	11
Riboflavin	25	31	26	14	51	20
Vitamin B_6	9	9	18	9	29	8
Vitamin B_{12}	1	5	1	2	1·8	4
Folate	25	48	41	53	56	44
Vitamin C	28	36	37	48	44	49

*Reference nutrient intakes for men and women aged ‡ 50 years(13).
†No. of patients varies according to micronutrient and group (male and female).

Stratton RJ. Malnutrition: another health inequality? *Proc Nutr Soc* 2007; 66(4):522-529.

DEFICIENCIES OF MICRONUTRIENTS ARE COMMON AND ARE PART OF MALNUTRITION[1]

NICE Guidance CG32 (2006 & 2017)[2]

Oral multivitamin and mineral supplements should help individuals who are eating poorly to meet their vitamin and mineral requirements…..many older individuals living at home and a great many living in residential care were found to have biochemical deficiencies of vitamins or minerals despite the fact that their food supply appeared to contain sufficient amounts.

1. Stratton RJ. Malnutrition: another health inequality? Proc Nutr Soc 2007; 66(4):522-529.
2. NICE. Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition. NICE clinical guideline CG32. NICE, 2006. Available at: www.nice.org.uk/guidance/cg32

DIETARY INTAKE, ENERGY AND NUTRIENT INTAKE MAY CONTINUE TO FALL SHORT OF REQUIREMENTS DESPITE BEST EFFORTS[1,2,3]

Oral nutritional supplements (ONS) may be required to treat or prevent malnutrition.

In frail elderly, those who are acutely unwell, consider whether delaying ONS will cause irreversible loss of muscle mass and decline in function

1. Barton AD, Beigg CL, Macdonald IA, Allison SP. High food wastage and low nutritional intakes in hospital patients. Clin Nutr 2000; 19(6):445-449.
2. Walton K. Williams P, Tapsell L, Batterham M. Rehabilitation in patients are not meeting their energy and protein needs. ESPEN, the European e-Journal of Clinical Nutrition and Metabolism 2007; 2:e120-e126.
3. Stratton RJ. Malnutrition: another health inequality? Proc Nutr Soc 2007; 66(4):522-529.

TYPES OF ONS – LIQUIDS, POWDERS, DESSERTS

- Standard 1 – 1.5 kcal/ml
- High energy / nutrient dense
- **High protein (NEW)**
- **Compact > 2.4 kcal/ml**
- Nutritionally complete
- Nutritionally incomplete
- Peptide based / elemental

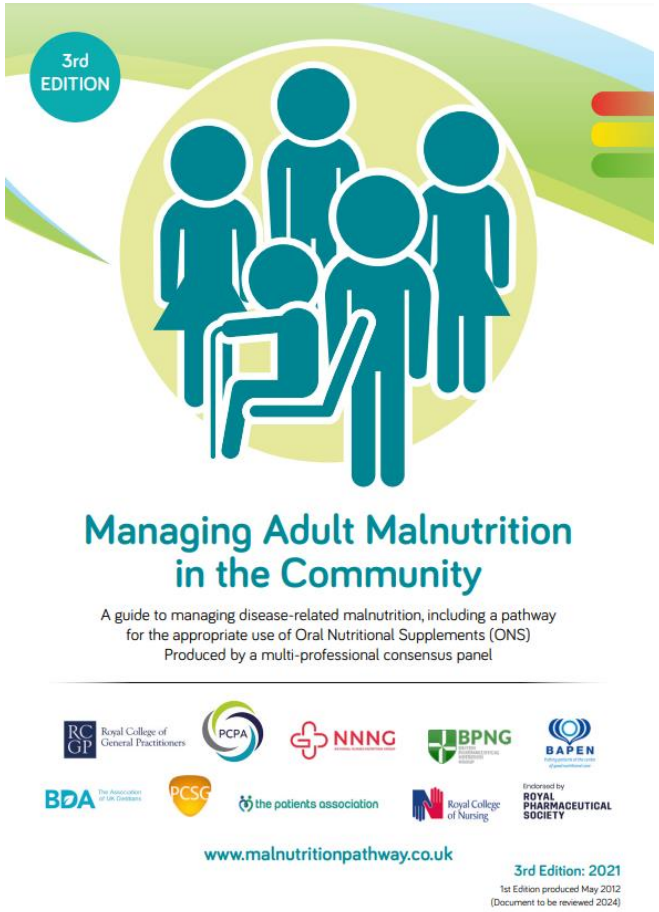
Check your local formularies

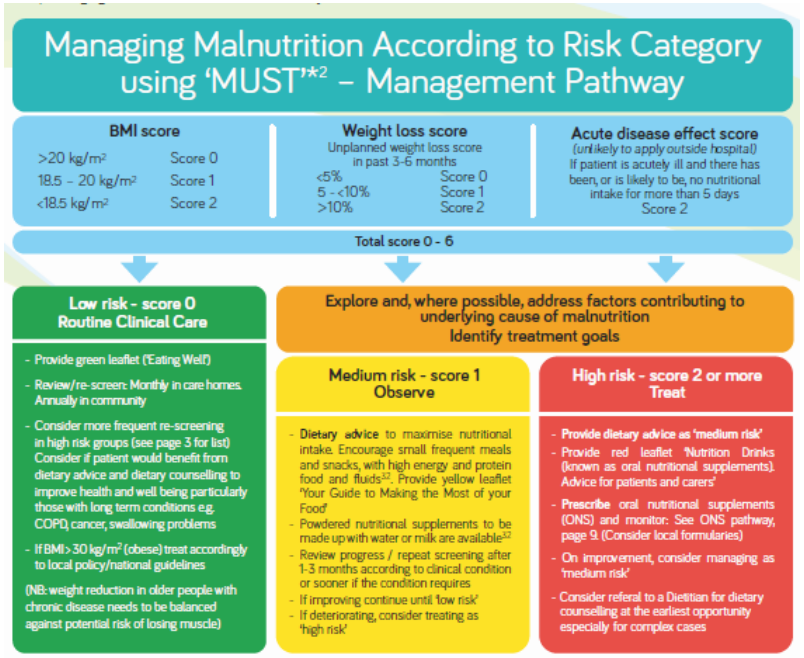
For at a glance overview see https://www.malnutritionpathway.co.uk/library/ons.pdf

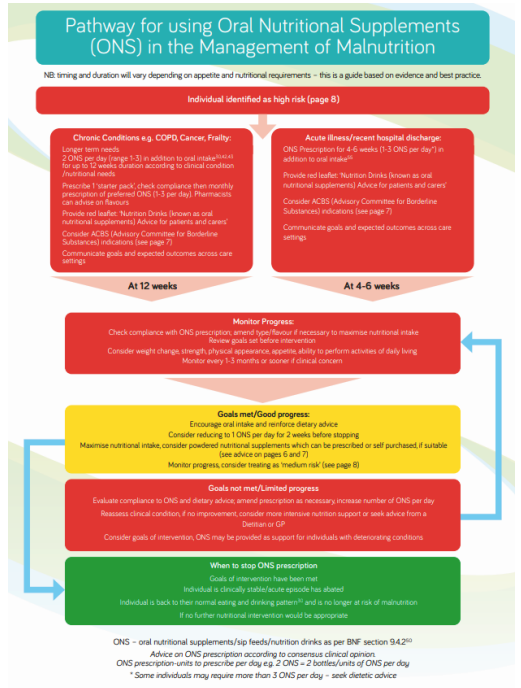
WHAT RESOURCES ARE THERE TO HELP PUT ALL THIS INTO PRACTICE?

RESOURCES TO HELP TACKLE MALNUTRITION
WWW.MALNUTRITIONPATHWAY.CO.UK

- Practical guidance and resources created by a multidisciplinary expert panel, endorsed by 11 professional organisations





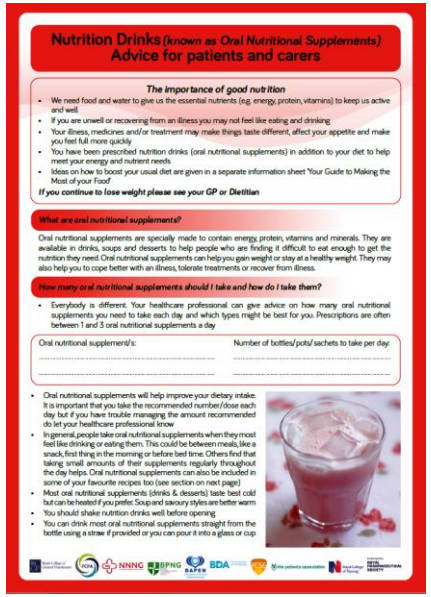


- Includes a pathway for ONS – when to start and when to stop

MANAGING ADULT MALNUTRITION IN THE COMMUNITY

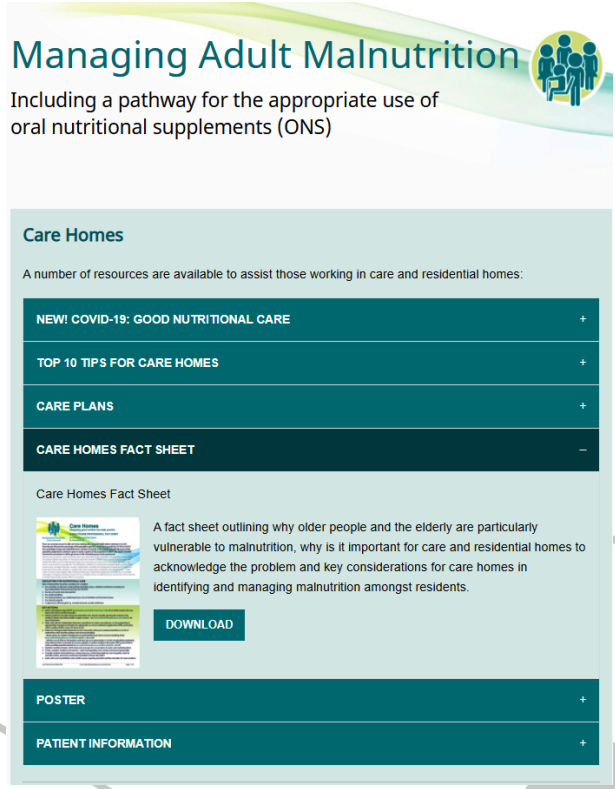
WWW.MALNUTRITIONPATHWAY.CO.UK

Accessible patient/carer materials for optimising nutrition according to risk



For both medium and high risk categories of malnutrition timely review is key: 1-3 months depending on clinical concern

TOP TIPS FOR CARE SETTINGS AND HCPs



WHAT TO DO IN CLINICAL PRACTICE
FOOD / ONS / VITAMIN & MINERALS /SOCIAL R_X ?

For an older person in a care home where qualified staff are on hand to support eating and drinking, a chef understands how to modify meals and staff have been trained to prevent malnutrition and where appetite is maintained it may be appropriate to take a food-based approach, a vitamin and mineral supplement may be required

Faced with a patient with multiple morbidities who has spent time acutely unwell and 'wasting' in hospital, lives alone, is lacking energy and strength to prepare 'fortified meals', has considerable muscle loss and muscle strength, in whom appetite remains poor, why would you delay a more assertive multimodal approach: consider advice on diet plus oral nutritional supplements, meal delivery, social support?

Thorne and Baldwin J Hum Nutr Diet. 32,108–118
Baldwin et al 2021 *Advances in Nutrition*, 12, 2, 503–522

WHEN TO REFER TO THE DIETITIAN?

- When goals set are not met in a suitable timescale
- When multi-morbidities are present e.g. diabetes, dysphagia, cancer
- In those who are at ‘high risk’ – low BMI/high rate of weight loss, ‘MUST’ score 2 or more – but you can take action in the meantime
- To review those requiring ONS or on long term ONS (this will depend on local arrangements)
- When clinically assisted nutrition and hydration is being considered

DOES TACKLING MALNUTRITION MAKE A DIFFERENCE?

SYSTEMATIC REVIEWS AND META-ANALYSES HAVE DEMONSTRATED THAT ORAL NUTRITIONAL SUPPORT CAN [1,2,3]

- ✓ Reduce complications (pressure ulcers, delayed wound healing, infections)
- ✓ Reduce hospital admissions, readmissions & length of stay
- ✓ Reduce mortality
- ✓ Increase physical function
- ✓ Improve quality of life

Note - considerable heterogeneity in studies[3].

More studies are required in specific conditions examining the dual role of exercise and nutrition combined

1. Stratton and Elia 2007 Clinical Nutrition Supplements 2(1):5-23 2. Stratton, R. J., Hébuterne, X., & Elia, M. 2013 *Ageing research reviews*, *12*(4), 884–897. 3. Baldwin et al 2021 *Adv Nutr 2021;12(2):503-52*

Recommended treatment for targeting muscle mass and function is based on optimal nutrition and physical exercise

EWGSOP2

- Physical exercise (resistance training)
- Optimization of protein intake
- Vitamin D supplementation

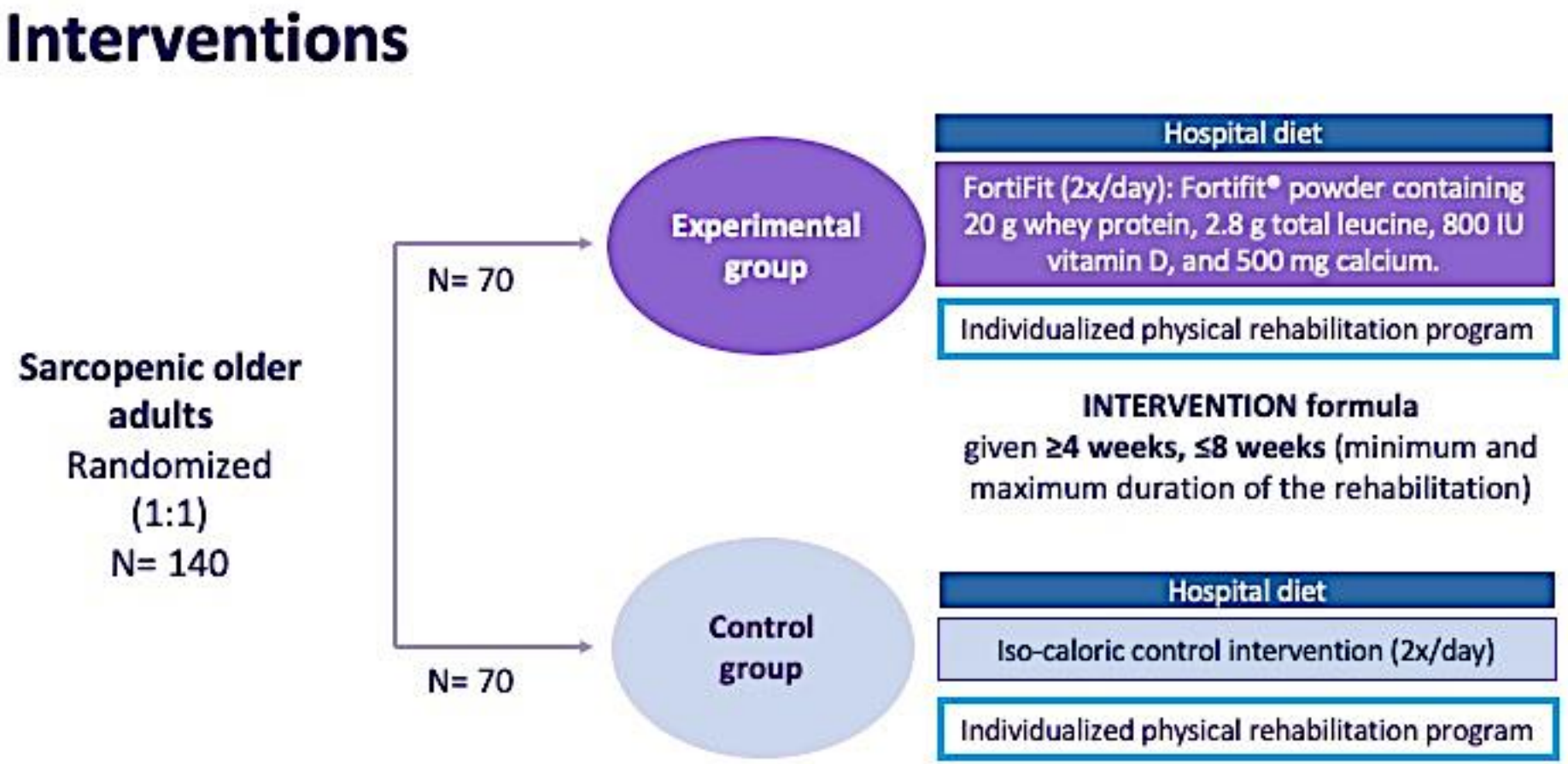
PROT-AGE Study Group

- Protein intake at least 1.2 g/kg/day
- Per-meal anabolic threshold of protein/amino acid intake ~25-30 g (containing ~2.5-2.8g leucine)
- High-quality protein source (e.g. whey)
- Adequate intake of vitamin D

Bauer et al. J Am Med Dir Assoc 2013;14:542-59
Deutz et al. Clin Nutr 2014;33:929-36
Cruz-Jentoft AJ et al. Age Ageing. 2019;48:16-31.

Cereda E – ESPEN 2020

CAN TARGETED NUTRITIONAL THERAPY MAKE A DIFFERENCE?



Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Study endpoints at discharge

Primary endpoint	Secondary endpoints	Other measures
 Change in gait speed	 QoL  Cognitive status  Body composition  Physical performance  Functional status	 Health economics  Nutritional outcomes

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Results: Primary endpoint

Change in gait speed

- Baseline characteristics in the 2 groups were similar.
- Mean compliance to intervention was good (experimental, 92%; control, 90%).

	Control formula Within-group change [a] (N=63)	Experimental formula Within-group change [a] (N=64)	Treatment effect Between-group difference [a]	P-value
Primary analysis	-0.001 (-0.008 to 0.006)	0.061 (0.043 to 0.080) [b]	0.062 (0.043 to 0.082)	<0.001
Sensitivity analyses:				
Multivariable analysis [c]	--	--	0.042 (0.026 to 0.058)	<0.001
Worst case scenario analysis	-0.006 (-0.138 to 0.001)	0.052 (0.033 to 0.070) [b]	0.058 (0.038 to 0.078)	<0.001

[a] Data are provided as mean and 95%CI.
[b] Within-group change significant at the 5% level.
[c] Model adjusted for sex, age, monthly change in energy intake, monthly change in creatinine and monthly change in total cholesterol

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Cereda E – ESPEN 2020

Results: Key secondary endpoints

Endpoints	Control formula Within-group change [a] (N=63)	Experimental formula Within-group change [a] (N=64)	Treatment effect Between-group difference [a]	P-value
Chair stand test (s)	-4.44 (-5.85 to -3.03) [b]	8.20 (7.05 to 9.35) [b]	12.64 (10.84 to 14.44)	**<0.001**
Timed up and go test (s)	-0.76 (-1.07 to -0.44) [b]	2.95 (2.41 to 3.49) [b]	3.71 (3.09 to 4.33)	**<0.001**
SPPB (score)	0.33 (0.19 to 0.46) [b]	2.60 (2.23 to 2.98) [b]	2.27 (1.88 to 2.68)	**<0.001**

[a] Data are provided as mean and 95%CI.
[b] Within-group change significant at the 5% level.

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Results: Other secondary endpoints

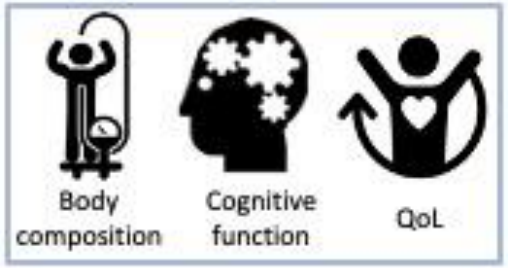
Functional status

Endpoints	Control formula Within-group change [a] (N=63)	Experimental formula Within-group change [a] (N=64)	Treatment effect Between-group difference [a]	P-value
Activities of daily living (score)	0.01 (-0.10 to 0.12)	0.67 (0.51 to 0.83) [b]	0.66 (0.46 to 0.85)	**<0.001**
Tinetti scale (score)	-0.27 (-0.57 to 0.03)	2.09 (1.67 to 2.52) [b]	2.36 (1.85 to 2.88)	**<0.001**
Barthel index (score)	0.92 (-0.15 to 1.99)	5.02 (3.77 to 6.27) [b]	4.10 (2.47 to 5.73)	**<0.001**
Handgrip strength (kg)	-1.47 (-2.01 to -0.92) [b]	3.98 (3.20 to 4.75) [b]	5.45 (4.51 to 6.38)	**<0.001**

[a] Data are provided as mean and 95%CI.
[b] Within-group change significant at the 5% level.

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Results: More secondary endpoints



Endpoints	Control formula Within-group change [a] (N=63)	Experimental formula Within-group change [a] (N=64)	Treatment effect Between-group difference [a]	P-value
Body weight (kg)	-0.90 (-1.09 to -0.70) [b]	1.55 (1.35 to 1.76) [b]	2.45 (2.17 to 2.73)	**<0.001**
Appendicular muscle mass (g)	-69.4 (-843.7 to 704.9)	949.8 (783.7 to 1115.8) [b]	1019.2 (235.2 to 1803.2)	0.011
Skeletal muscle mass index (kg/m²)	-0.02 (-0.35 to 0.32)	0.38 (0.31 to 0.442) [b]	0.40 (0.06 to 0.73)	0.023
MMSE (score)	-0.11 (-0.16 to -0.05) [b]	0.46 (0.25 to 0.66) [b]	0.57 (0.352 to 0.773)	**<0.001**
Trail making test (s)	-0.12 (-0.48 to 0.23)	-3.32 (-4.01 to -2.63) [b]	-3.20 (-3.97 to -2.43)	**<0.001**
SF-12 PCS (score)	0.16 (-1.09 to 1.40)	1.47 (0.68 to 2.26) [b]	1.31 (-0.15 to 2.77)	0.08
SF-12 MCS (score)	1.38 (0.61 to 2.16) [b]	1.25 (0.28 to 2.222) [b]	-0.13 (-1.367 to 1.098)	0.82

[a] Data are provided as mean and 95%CI.
[b] Within-group change significant at the 5% level.

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

Results: Health economics endpoint

- A greater proportion of patients went home instead of being transferred to an institution:
  - **84.3% vs. 60.3%**
  - Treatment difference, **24.0%** [95%CI, 9.1 to 39.1], (P=0.002)
- A greater proportion of patients experienced a reduction in intensity of care:
  - **85.9% vs. 63.5%**
  - Treatment difference, **22.5%** [95%CI, 7.8 to 37.1], (P=0.003)

Rondanelli M, Cereda E et al. J Cachexia Sarcopenia Muscle 2020; In press

CONCLUSIONS

- The first high quality trial investigating the accepted treatment of sarcopenia (resistance training, optimisation of protein intake and vitamin D supplementation) on multiple physical performance outcome measures and the related cost saving
- All patients underwent an individualised physical rehabilitation programme but benefits were seen only in the group receiving muscle-targeted nutritional formula

Rondanelli M, Cereda E et al. Journal Cachexia, Sarcopenia Muscle 2020 11, 6 1535-1547

TAKE HOME MESSAGES

Older people are nutritionally vulnerable especially those with multimorbidity

Nutritional care should be anticipatory and considered and initiated for people in whom we know are unlikely to, or are unable to eat, to meet requirements orally, taking into account the trajectory of disease

Optimal nutrition care (protein, vit D, diet quality), managing eating difficulties, combined with activity are central to well-being, disease management, rehabilitation and QoL. Nutritional rehabilitation may be required for weeks / months beyond hospital discharge

Overlooking the nutritional needs of frail older people leads to a downward spiral of increasing dependency on others. Teamwork and good communication is essential - mind the gaps as patients transfer across settings

Visit: www.malnutritionpathway.co.uk

SOME SUGGESTED KEY ACTIONS….. (WE NEED NUTRITION CHAMPIONS)

1

Consider building screening / nutritional assessment into consultation templates especially those with chronic conditions e.g. COPD, frailty, cancer

2

Overcome barriers - Work as a team, draw on each other's strengths, collaborate and ensure resources and services for both patients and clinicians are accessible

3

Update and communicate plans as patients move across settings - Engage with dietitians for complex patient management, leadership, training

THANKYOU FOR YOUR ATTENTION

TIME FOR QUESTIONS

CASE STUDY

CASE STUDY - FRAIL OLDER PERSON - JOYCE

83-year-old female. Lives alone in sheltered housing

History of type 2 diabetes and hypertension

Admitted to hospital after a fall in which she #NOF.

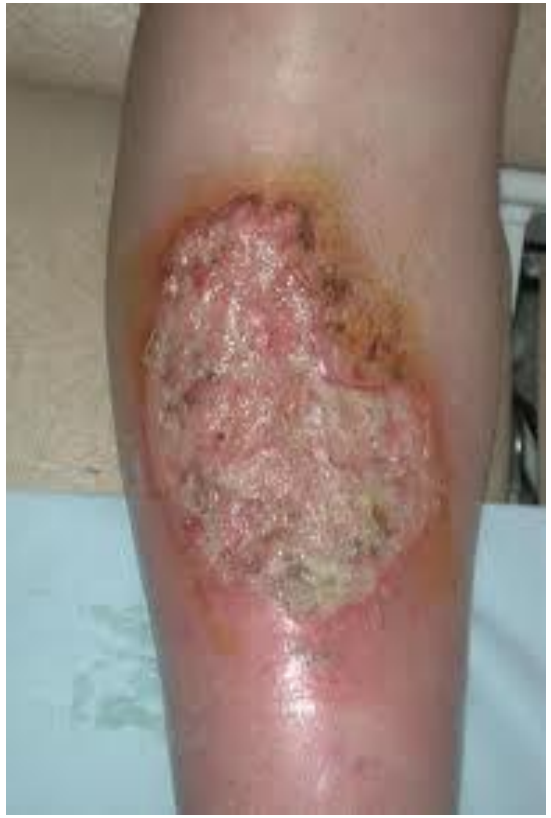
Developed leg ulcers during a 3-week hospital stay.

Since discharge - District nursing visiting several times a week for wound care (ulcers unchanged over 4 weeks)

Significant loss of function, limited movement around flat with Zimmer- frame. Frail, depressed, withdrawn, considered 'end-of- life', referred to palliative nurse specialist

Palliative nurse specialist identified appetite poor and had not picked up since hospital discharge. Weight on discharge from hospital not known but estimated from history that Joyce had experienced 17 % weight loss over 2 months. BMI = 20 kg/m^2

FACTORS TO CONSIDER



Appetite, dietary intake and ability to source and prepare meals

Appropriateness of dietary restrictions for diabetes and hypertension when appetite is poor

Vit. D supplementation (depressed, elderly and house bound). Vit D level in hospital was 23 no action taken!

Poor wound healing secondary to sub-optimal protein, vitamin and mineral intake/ status*

Joyce's goals?

***Daily cost of pressure ulcers = £43 - £374**[1] *www.nice.org.uk/guidance/cg179/*

INTERVENTION AND OUTCOME

Palliative nurse specialist initiated prescription for 125 ml Compact ready to drink, ONS b.d.

Palliative nurse consulted with dietitian regarding appropriate dietary advice to give

Dietitian requested Vit. D replacement therapy via GP.

Joyce was monitored by nurse & pharmacist

Nutritional status improved considerably – weight stabilised. ADLs improved, pressure ulcers healed. ONS reduced from 1 x 125 mls to 1 x 125 mls after 8 weeks

Change – transformational - no longer ‘end-of-life’

Discharged from palliative care team after 3 months

“I love the drinks, I have no doubt they helped heal my ulcers because before I took them the ulcers were getting worse. I was so weak. My carers have been marvellous and I know I am eating better but the drinks helped too. They gave me the strength to get up and walk around my flat. 2 months ago even getting to the door was an effort, I feel so different now.

Earlier this year I wanted to die, now I want to live. I am loving life again, loving seeing my grand-children and feeling I have the energy to face the day”