
# NUTRITION IN ELDERLY

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# OUTLINE

A. DEFINITION

B. AGEING AND MALNUTRITION

C. NUTRITION SCREENING AND ASSESSMENT

D. NUTRITIONAL REQUIREMENTS

E. NUTRITIONAL MANAGEMENT

# A. DEFINITION

# WHO ARE THE OLDER POPULATION?

## THE UN AGREED CUTOFF IS 60+ YEARS

# NUTRITION IN ELDERLY

IT APPLIES NUTRITION PRINCIPLES

- TO DELAY EFFECTS OF AGING AND DISEASE

- TO AID IN MANAGEMENT OF THE PHYSICAL , PSYCHOLOGICAL, AND PSYCHOSOCIAL CHANGES COMMONLY ASSOCIATED WITH GROWING OLD

# B. AGEING AND MALNUTRITION

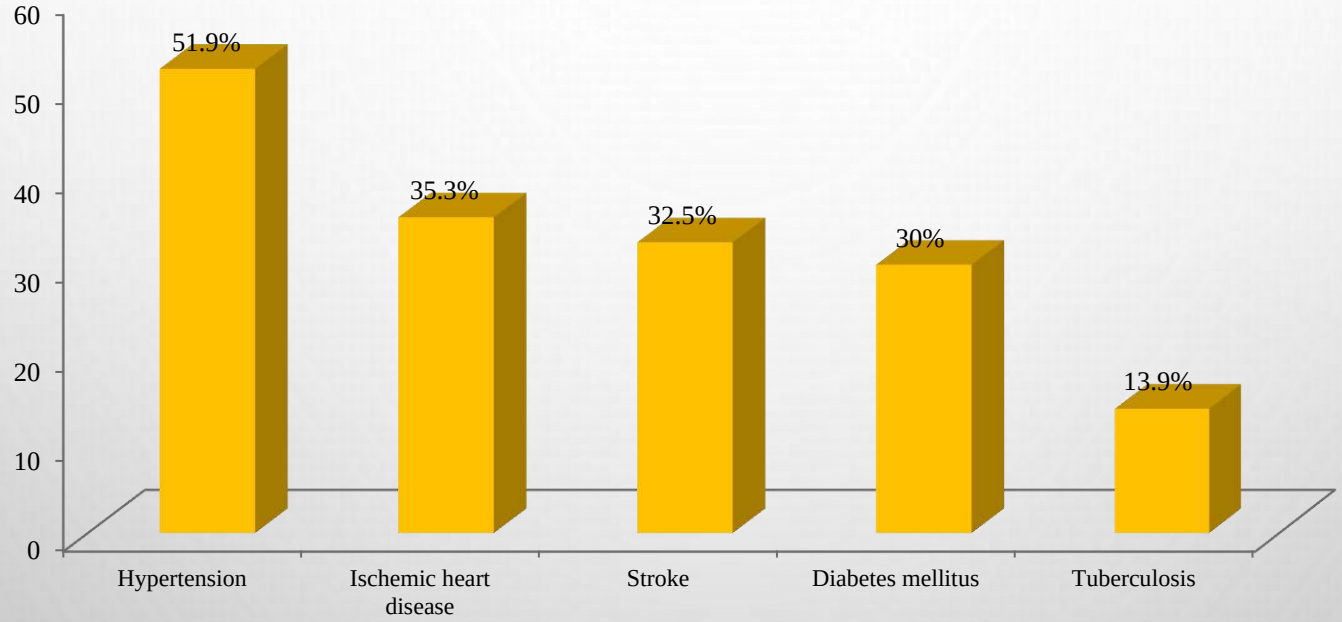
- STARTING AT MIDDLE AGE, OPERATIONS OF THE HUMAN BODY BEGIN TO BE MORE VULNERABLE TO DAILY WEAR AND TEAR
- GENERAL DECLINE IN PHYSICAL, AND POSSIBLY MENTAL, FUNCTIONING
- THE OLDER WE GET, THE GREATER THE RISK OF DISEASES AND LIMITATIONS
- THE MOST COMMON DISEASES OF AGEING INCLUDE ALZHEIMER'S, ARTHRITIS, CANCER, DIABETES, DEPRESSION, AND HEART DISEASE

# ELDERLY PATIENTS ADMITTED TO MEDICAL WARD, NYGH FROM MAY TO OCTOBER 2016

| Disease category | Percentage |
|---|---|
| Respiratory diseases | 30% |
| Cardiovascular diseases | 13.7% |
| Neurological diseases | 12.5% |
| Infection | 12.5% |
| Renal diseases | 8.75% |
| GI and Liver problems | 8.75% |
| Malignancy | 7.5% |
| Endocrine diseases | 6.25% |
| Hematological diseases | 3.75% |
| Miscellaneous | 1.25% |

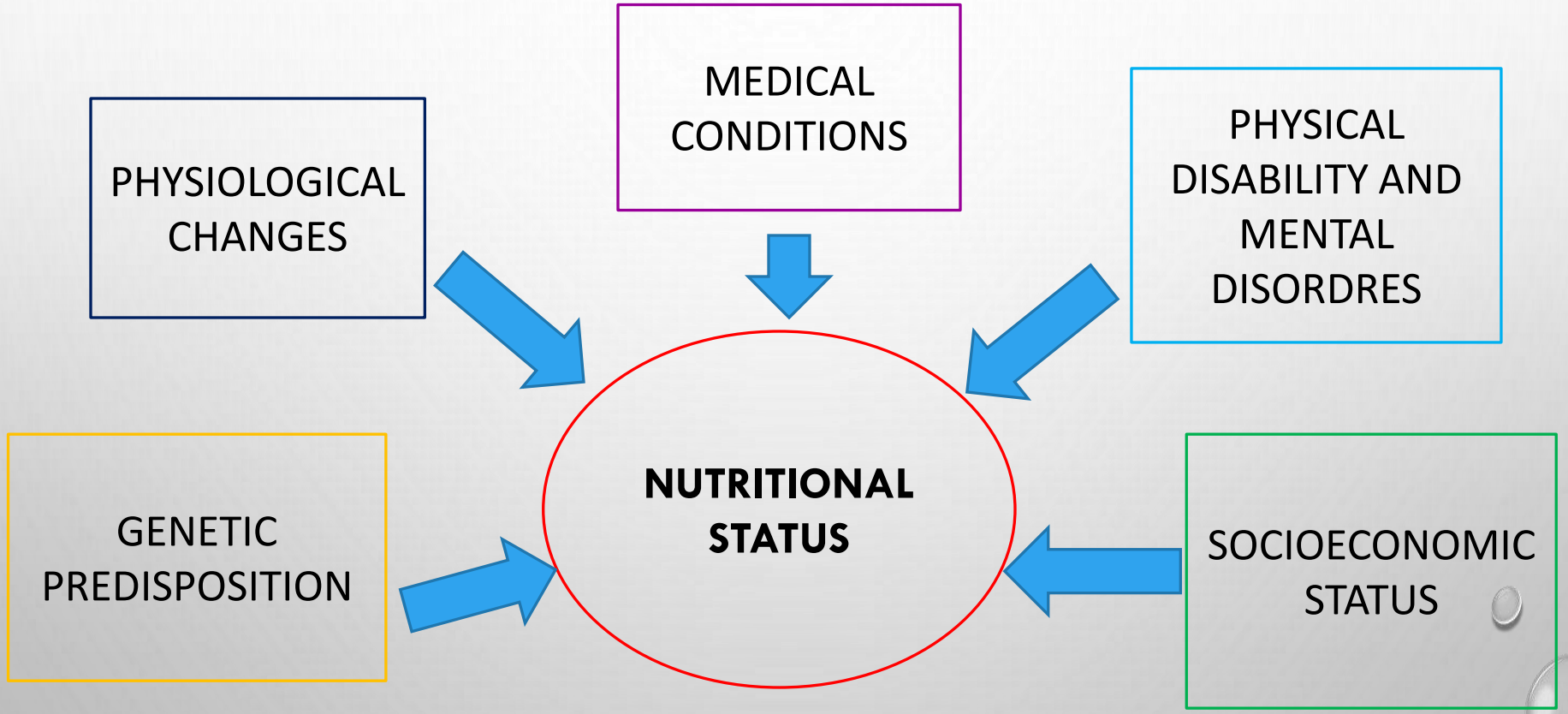
Ref; Data collected for Nutrition Screening and Assessment at New Yangon General Hospital: Professor Zaw Lynn Aung, 18th GP Conference presentation

# DISEASE CO-MORBIDITY OF ELDERLY HOSPITALIZED PATIENTS




Ref; Data collected from Min Zaw Oo (2017) Usefulness of Mini Nutritional Assessment in elderly hospitalized patients with serum vitamin D deficiency,UM1 ,Yangon

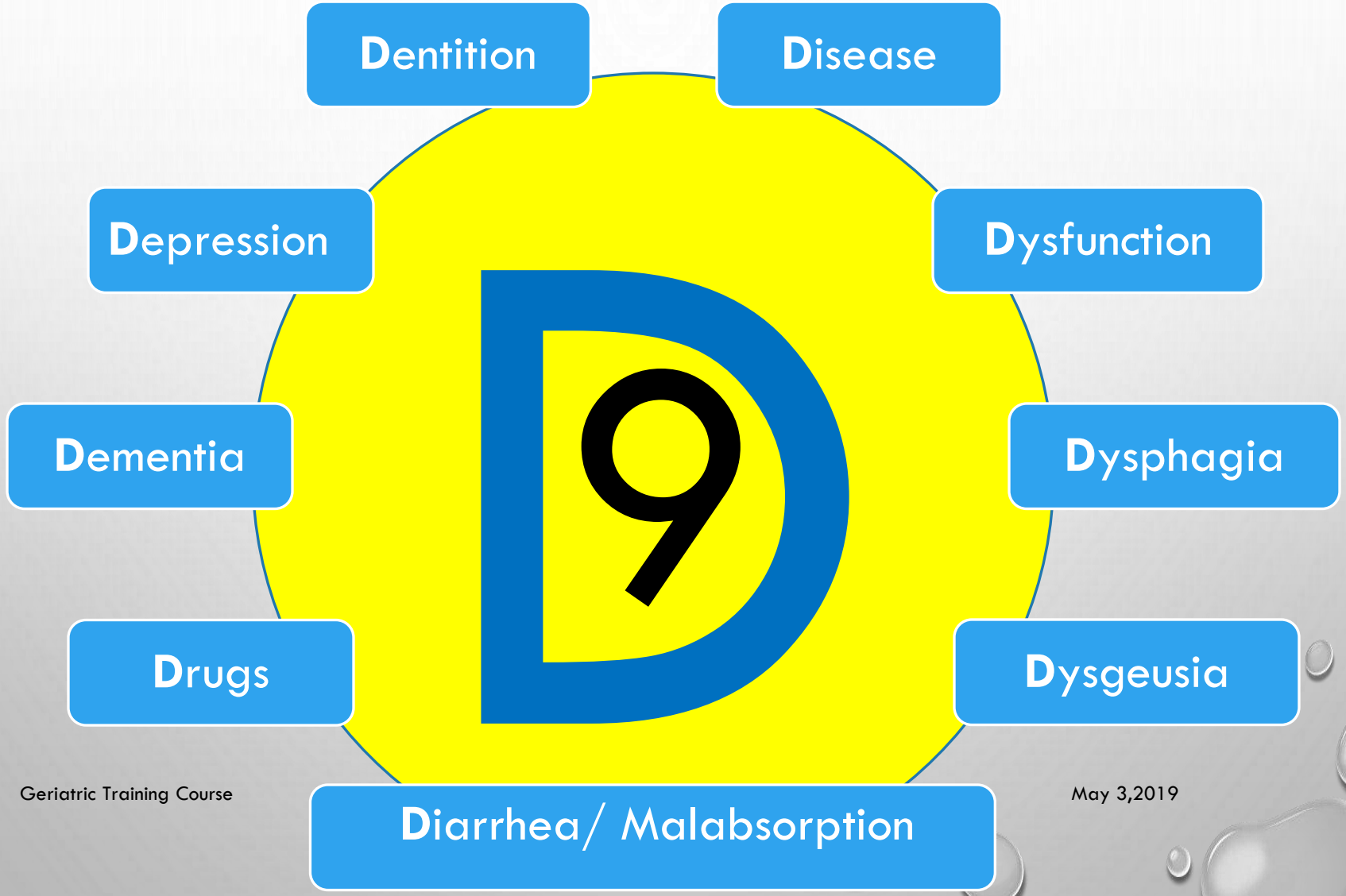
# FACTORS CONTRIBUTE TO NUTRITIONAL STATUS

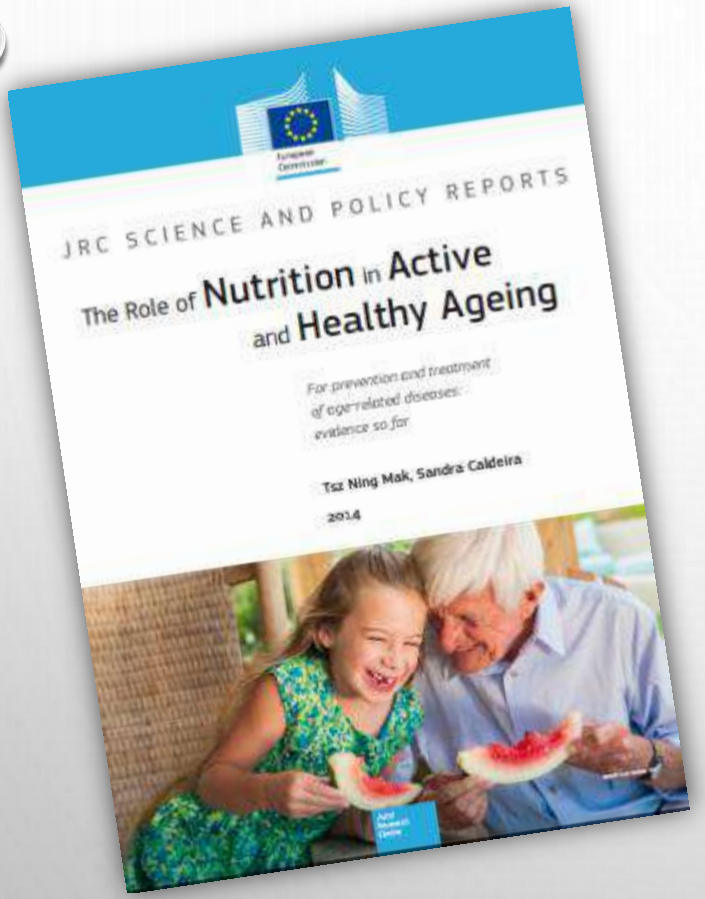


# EFFECTS OF AGEING ON NUTRITION

| EFFECTS OF AGING ON NUTRITION | |
|---|---|
| ***Change*** | → ***Effect*** |
| Sensory Impairment | |
| • Decreased sense of taste | → Reduced appetite |
| • Decreased sense of smell | → Reduced appetite |
| • Loss of vision and hearing | → Decreased ability to purchase and prepare food |
| • Oral health / dental problems | → Difficulty chewing, inflammation, poor quality diet |
| Altered energy need | → Diet lacking in essential nutrients |
| Decreased physical activity | → Progressive depletion of LBM and loss of appetite |
| Muscle loss (sarcopenia) | → Decreased functional ability, assistance needed with ADLs |
| Psychosocial (isolation) | → Decreased appetite |
| Environmental (financial) | → Limited access to food; poor quality diet |
| ***Cumulative Effect*** | → ***Progressive Undernutrition*** |

# INADEQUATE FOOD INTAKE AND WEIGHT LOSS IN THE ELDERLY






- Malnutrition refers to condition resulting from imbalance between nutrient needs and actual intake
- It results from either under- or over-nutrition
- Both have negative effects on healthy aging and longevity

# MALNUTRITION

Community dwelling older adults (ASPEN criteria)
(2 of the following)

- INSUFFICIENT ENERGY INTAKE
- LOSS OF MUSCLE MASS
- FLUID ACCUMULATION
- LOSS OF SUBCUTANEOUS FAT
- DIMINISHED FUNCTION BY HAND GRIP STRENGTH
- INVOLUNTARY WEIGHT LOSS

# MALNUTRITION

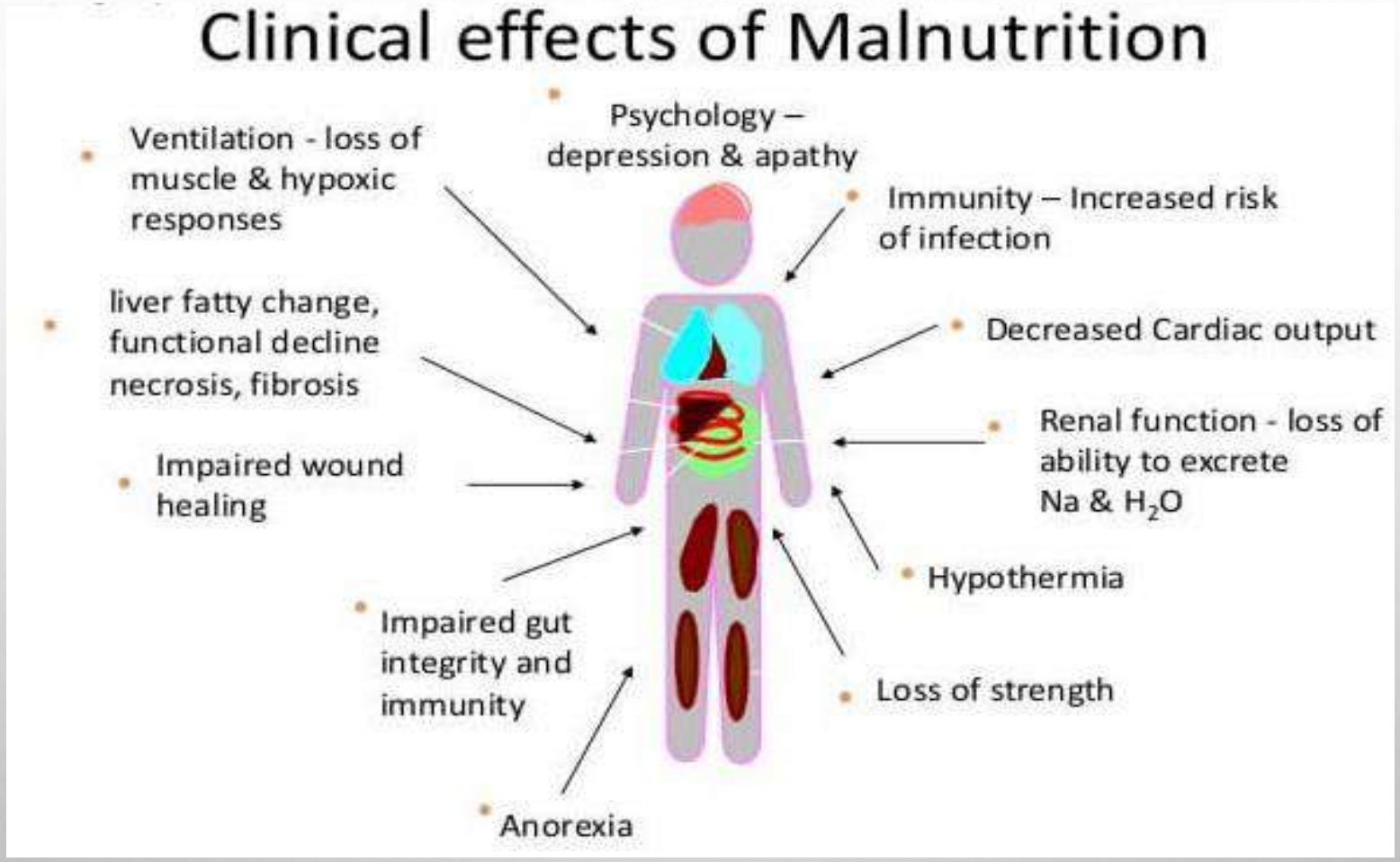
## Nursing home patients

- Weight loss of ≥5% in past 30 days:≥10% in 180 days
- Dietary intake <75% of most meals

## Hospital patients

- Dietary intake (<50% of estimated needed caloric intake)
- Hypoalbuminemia
- hypocholestrolemia

# CLINICAL EFFECTS OF MALNUTRITION



# MALNUTRITION AT HOSPITAL ADMISSION IS COMMON IN OLDER PATIENTS

## PREVALENCE IN HOSPITALS

| Country | Prevalence | Number surveyed |
|---|---|---|
| Netherland 1 | 26% | 8028 |
| Switzerland 2 | 22-28% | 32,837 |
| UK 3 | 25% | 7541 |
| Belgium 4 | 33% | 2329 |
| Europe 5 | 39% | 1384 |
| Cuba 6 | 51% | 704 |
| Brazil 7 | 53% | 4000 |



**1.** Meijers JM, et al. *Br J Nutr*. 2009;101:417-423. **2.** Imoberdorf R, et al. *Clin Nutr*. 2010;29:38-41. **3.** Russell CA, et al. Redditch, UK: BAPEN; 2012. **4.** Vanderwee K, et al. *Clin Nutr*. 2010;29:469-476. **5.** Kaiser MJ, et al. *J Am Geriatr Soc*. 2010;58:1734-1738. **6.** Barreto Penie J. *Nutrition*. 2005;21:487-497. **7.** Waitzberg DL, et al. *Nutrition*. 2001;17:573-580.

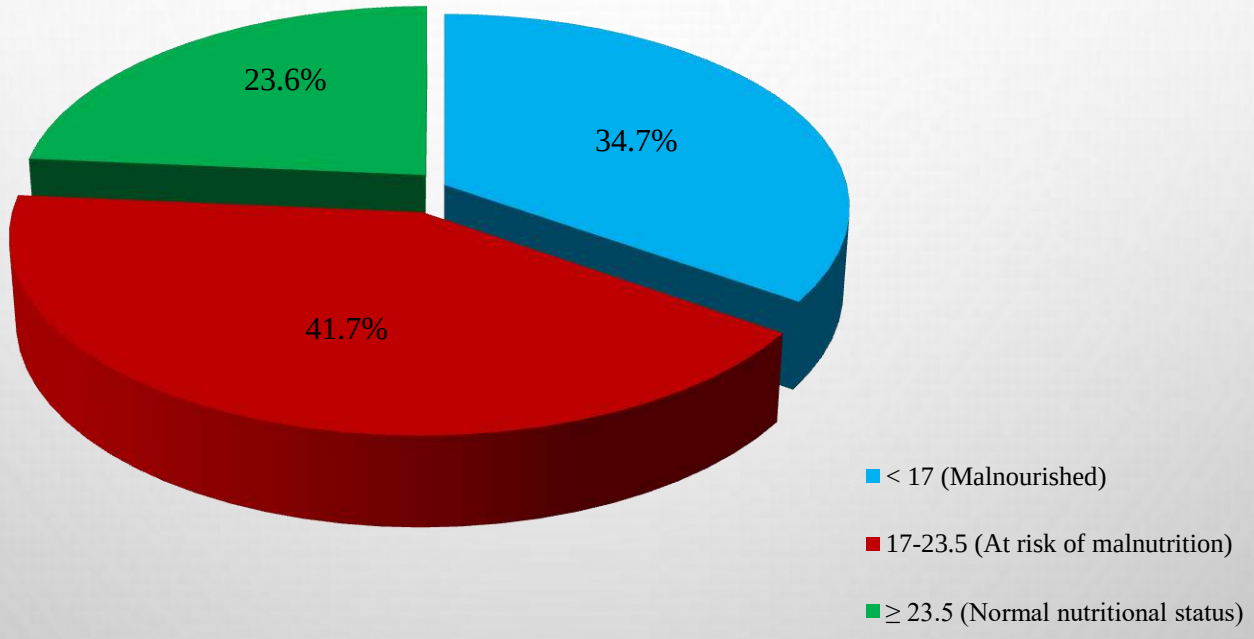
# ELDERLY PATIENTS ADMITTED TO MEDICAL WARD, NYGH (FROM MAY TO OCTOBER 2016)

SGA WAS DONE IN SEVENTY ELDERLY PATIENTS

| SGA grading | No of Patients | Percentage |
|---|---|---|
| **A** (Well nourished) | 28 | 40% |
| **B** (Moderately malnourished) | 40 | 57% |
| **C** (Severely malnourished) | 2 | 3% |

Ref; Data collected for Nutrition Screening and Assessment at New Yangon General Hospital: Professor Zaw Lynn Aung, 18th GP Conference presentation

# STATUS OF MALNUTRITION ELDERLY HOSPITALIZED PATIENTS BY USING MINI NUTRITIONAL ASSESSMENT (MNA) SCORE




Ref; Data collected from Min Zaw Oo (2017) Usefulness of Mini Nutritional Assessment in elderly hospitalized patients with serum vitamin D deficiency,UM1 ,Yangon

# C. NUTRITION SCREENING AND ASSESSMENT

# NUTRITION SCREENING AND ASSESSMENT ARE NOT THE SAME

## NUTRITION SCREENING

- USE TO IDENTIFY WHO ARE MALNOURISHED OR AT RISK FOR MALNUTRITION
- WHOLE POPULATION OR SIMPLY DEFINED AT-RISK GROUPS
- SHORT INSTRUMENTS
- SIMPLE AND SINGLE STEP

### OUTCOME

- NEED FOR ASSESSMENT

## NUTRITION ASSESSMENT

- USE TO CONFIRM IF A PATIENT IS MALNOURISHED OR NOT
- CENTERED IN INDIVIDUALS
- LONGER INSTRUMENTS
- SEVERAL STEPS, CONTINUOUS PROCESS

### OUTCOME

- DIAGNOSIS OF MALNUTRITION AND PLANNING FOR INTERVENTION



Kondrup J, et al. *Clin Nutr*. 2003;22(4):415-421.

# NUTRITION SCREENING IS INDICATED IN ELDERLY

At hospital or rehabilitation admission

At nursing home admission

For frail patients or those with multiple diseases

Possibly for all people over 65 years

# SCREENING TOOLS FOR ELDERLY

Malnutrition Universal Screening Tool (MUST)

Malnutrition Screening Tool (MST)

Subjective Global Assessment (SGA)

Nutrition Risk Screeening-2002 (NRS-2002)

Mini Nutrition Assessment (MNA)

# USUAL NUTRITION ASSESSMENT METHODS

Medical history and physical Examination

Anthropometry

Body composition

Laboratory measures



Mueller C, et al. *JPEN J Parenter Enteral Nutr*. Jan 2011;35:16-24.

# USE MEDICAL HISTORY TO IDENTIFY RISKS OR DIAGNOSE MALNUTRITION

| Healthy issues of aging | Disease , disability And pain | Unhealthy behaviors | Financial and Social issues |
|---|---|---|---|
| Oral and dental issues<br>Dysphagia<br>GI problems<br>Anorexia of aging | Diseases<br>Drugs,<br>Polypharmacy<br>Dementia<br>Mental illness | Limited Lack Food Preferences<br>Physical inactivity<br>of knowledge<br>Of healthy eating<br>Alcohol abuse | Poverty<br>Social isolation<br>Limited access to food |

1.Pulisetty S, et al. In: Morley JE, Thomas DR, eds. *Geriatric Nutrition*. CRC Press; 2007:1-9.

2.Bernstein M, et al. *J Acad Nutr Diet*. 2012;112:1255-1277.

# DIAGNOSING MALNUTRITION FROM PHYSICAL EXAMINATION

- WEIGHT LOSS
- LOSS OF SUBCUTANEOUS FAT
- LOCALIZED OR GENERALIZED FLUID ACCUMULATION THAT MAY MASK WEIGHT LOSS
- LOSS OF MUSCLE MASS
- DIMINISHED FUNCTIONAL STATUS, INDICATED BY LOW HAND GRIP STRENGTH
- MOUTH, HAIR, EYE, SKIN OR NAILS WITH SIGNS OF ABNORMALITY

# ANTHROPOMETRIC MEASUREMENTS OF NUTRITIONAL STATUS

- WEIGHT
- HEIGHT
- ARM CIRCUMFERENCE
- CALF CIRCUMFERENCE
- SKIN FOLD MEASUREMENTS

# MEASURE WEIGHT IN ALL PATIENTS

- WEIGHT

  WELL-CALIBRATED STANDING, BED, OR CHAIR SCALE

  ADJUST WEIGHT FOR PATIENTS WITH AMPUTATIONS

- IDEAL BODY WEIGHT (IBW)

  MEN: 50KG FOR 152CM+0.9KG/CM FOR HEIGHT>152CM

  WOMEN: 45.5 KG FOR 152CM+0.9KG/CM FOR HEIGHT>152CM

- IBW IS POORLY VALIDATED IN OLDER ADULTS AND IS NOT RECOMMENDED



1. *www.amh.net.au/online/misc/idealweightcalculator.php*.
2.Hammond K. In: *Krause's Food and Nutrition Therapy*. 12 ed: Saunders Elsevier; 2008:383-410.

# WEIGHT LOSS IS A KEY COMPONENT OF NUTRITION ASSESSMENT

| | |
|---|---|
| Malnutrition | Unintentional weight loss up to 5% over I month or up to 7.5% over 3 months |
| Severe malnutrition | Unintentional weight loss 5% over I month or 7.5% over 3 months |



White JV, et al. *JPEN J Parenter Enteral Nutr*. 2012;36:275-283; *J Acad Nutr Diet*. 2012;112:730-738.

# HOW TO MEASURE HEIGHT

IF STANDING HEIGHT COULD NOT BE MEASURED,

Height (cm) computed from knee Height

Women : 84.88-(0.24 X age, years ) + (1.83 X knee height , cm)
Men : 64.19-(0.04 X age, years) + (2.02 X knee height, cm)

Height (cm) computed from demi-span (sternum to fingertip)

Women : 1.35 X demi-span (cm) + 60.1
Men : 1.40 X demi-span (cm) + 57.8

# CALF CIRCUMFERENCE: A SIMPLE ANTHROPOMETRIC MEASURE

- MOST SENSITIVE METHOD TO DETERMINE MUSCLE MASS IN OLDER ADULTS
- SIGNIFICANT CORRELATION WITH OTHER PARAMETERS OF NUTRITIONAL STATUS
- 30.5CM IS OPTIMAL CUT-OFF VALUE

# SOME LABORATORY DATA MAY HELP DIAGNOSE MALNUTRITION

- THEY CAN BE A PROGNOSTIC INDICATOR OF MALNUTRITION:
  - SERUM ALBUMIN — HALF-LIFE: 20 DAYS
  - PRE ALBUMIN — HALF-LIFE: 48 HOURS
  - TRANSTHYRETIN — HALF-LIFE: 2 DAYS
  - TRANSFERRIN — HALF-LIFE: 7 DAYS

- OTHERS: HB, LYMPHOCYTE COUNT, SERUM IRON, CHOLESTEROL, AND SOME INFLAMMATORY MARKERS

**BIOCHEMISTRY ALONE DOES NOT DIAGNOSE MALNUTRITION**

# WHEN TO SCREEN AND RESCREEN

| Population | Usual initial screening | Usual rescreening |
|---|---|---|
| Hospital in-patient | Within 24 hours of admission | At least weekly |
| Hospital out-patient | At first clinical appointment | When clinical or nutritional status changes |
| Long-term care residents | at admission or within 14 days of admission | Once monthly or When there is a clinical concern |

Monitor more frequently than usual if there is worsening clinical status or high risk of malnutrition

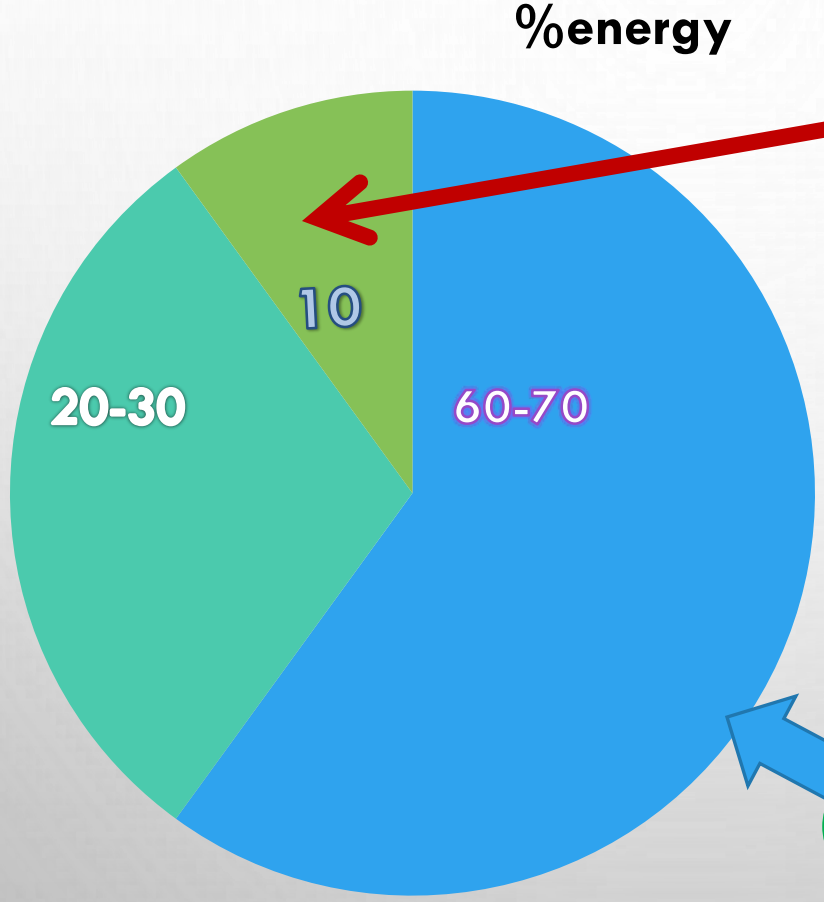
# WHEN TO SCREEN OR RESCREEN

| Population | Initial Screening | Rescreening |
|---|---|---|
| Home-care individual | On initial home care nurse visit | When clinical or nutritional status changes |
| Community-dwelling individual | At initial visit with physician | At least once yearly as part of a geriatric assessment |

Monitor more frequently when indicated by clinical status and degree of malnutrition risk

# D. NUTRITIONAL REQUIREMENTS

# ENERGY NEEDS ARE MAINLY DETERMINED BY ENERGY USED




Heat production in response to eating and environment

- Basal energy expenditure
- Physical activity
- thermogenesis

For normal functioning of cells and organs , mostly for maintenance of fat-free mass

# SIMPLE FORMULA FOR ESTIMATING ENERGY, PROTEIN AND FLUIDS

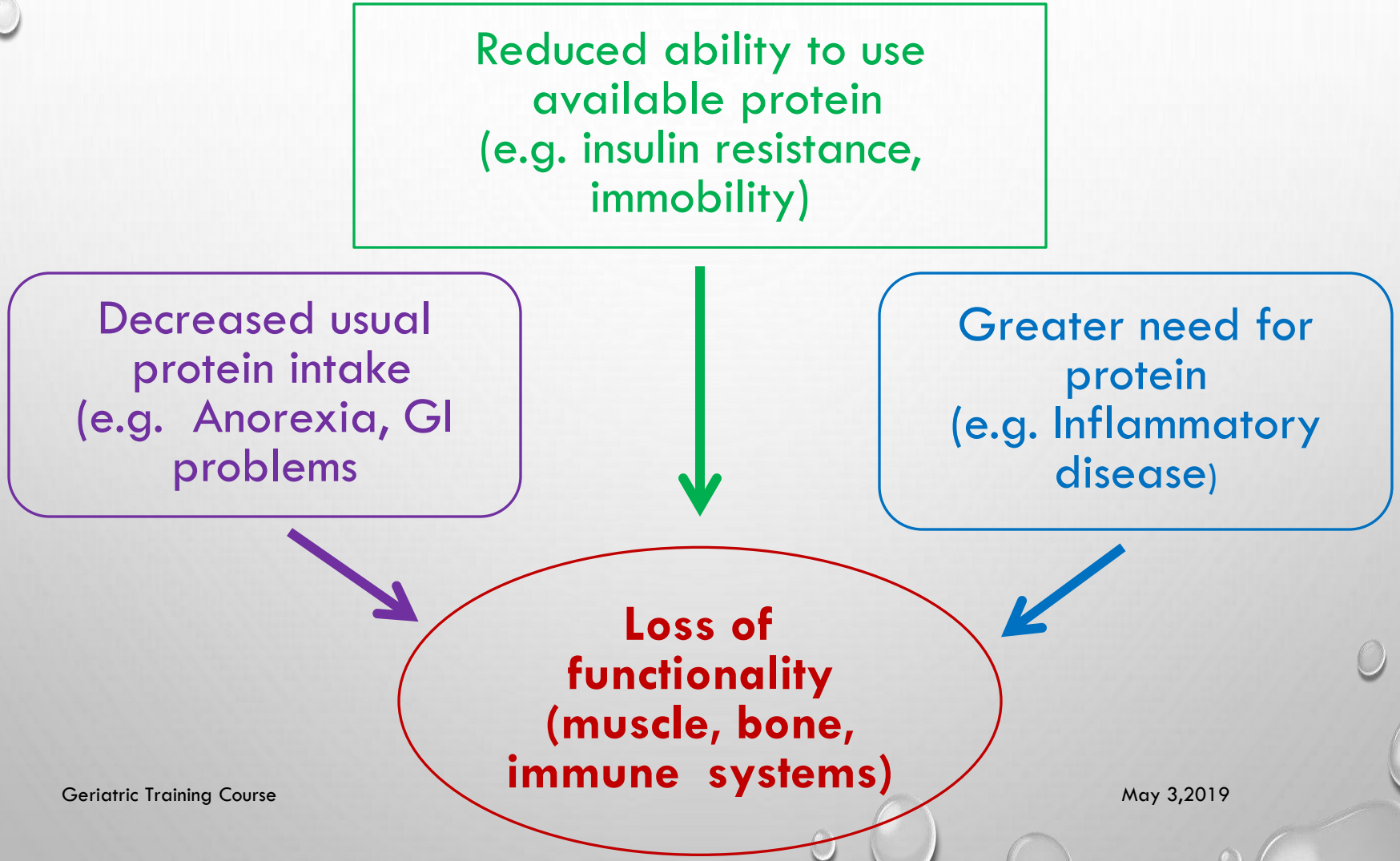
- USE ACTUAL WEIGHT FOR NORMAL OR UNDER WEIGHT
- USE IDEAL BODY WEIGHT FOR OVERWEIGHT OR OBESE PATIENTS

# OLDER PEOPLE NEED HIGHER PROTEIN INTAKE

Protein intake recommendations from
the PROT-AGE study group
(not apply to those with severe kidney disease)

| | |
|---|---|
| Healthy old | • 1.0 to 1.2G/Kg/day |
| Old who are active or exercise | • >1.2G/Kg/day |
| Old with acute or chronic diseases | • 1.2-1.5G/Kg/day |

# REASONS FOR RECOMMENDING INCREASED DIETARY PROTEIN INTAKE BY OLDER ADULTS



# RECOMMENDED VITAMIN INTAKE FOR ELDERLY

| Vitamins | Recommended intakes for adults >70 years |
|---|---|
| Vitamin B12 | 2.4 Microgram/day |
| Vitamin C | 90 mg/day for men<br>75mg/day for women |
| Vitamin D | 20 microgram/day |
| Folate | 400 microgram/day |



1.www.nap.edu/topics.php?topic=380

2.Wellman N. In: *Krause's Food and the Nutrition Care Process*. 13 ed. Elsevier; 2012:442-459.

# RECOMMENDED MINERAL INTAKE FOR ELDERLY

| Mineral and trace elements | Recommended intakes for adults >70 years |
|---|---|
| Calcium | 1200 mg/day |
| Phosphorous | 700mg/day |
| Magnesium | 420mg/day for men<br>320 mg/day for women |
| Iron | 8mg/day |
| Zinc | 11mg/day for men<br>8mg/day for women |
| Selenium | 55 microgram/day |



1.www.nap.edu/topics.php?topic=380
2.Wellman N. In: *Krause's Food and the Nutrition Care Process*. 13 ed. Elsevier; 2012:442-459

# GOOD NUTRITION BENEFITS AGEING ADULTS

- HELPS MAINTAIN HEALTH
- HELPS REDUCE RISK OF DISEASE
- COMPLEMENTS CHRONIC DISEASE TREATMENT
- SUPPORTS HEALTHY RECOVERY AND IMPROVES OUTCOMES AFTER AN ACUTE MEDICAL EPISODE

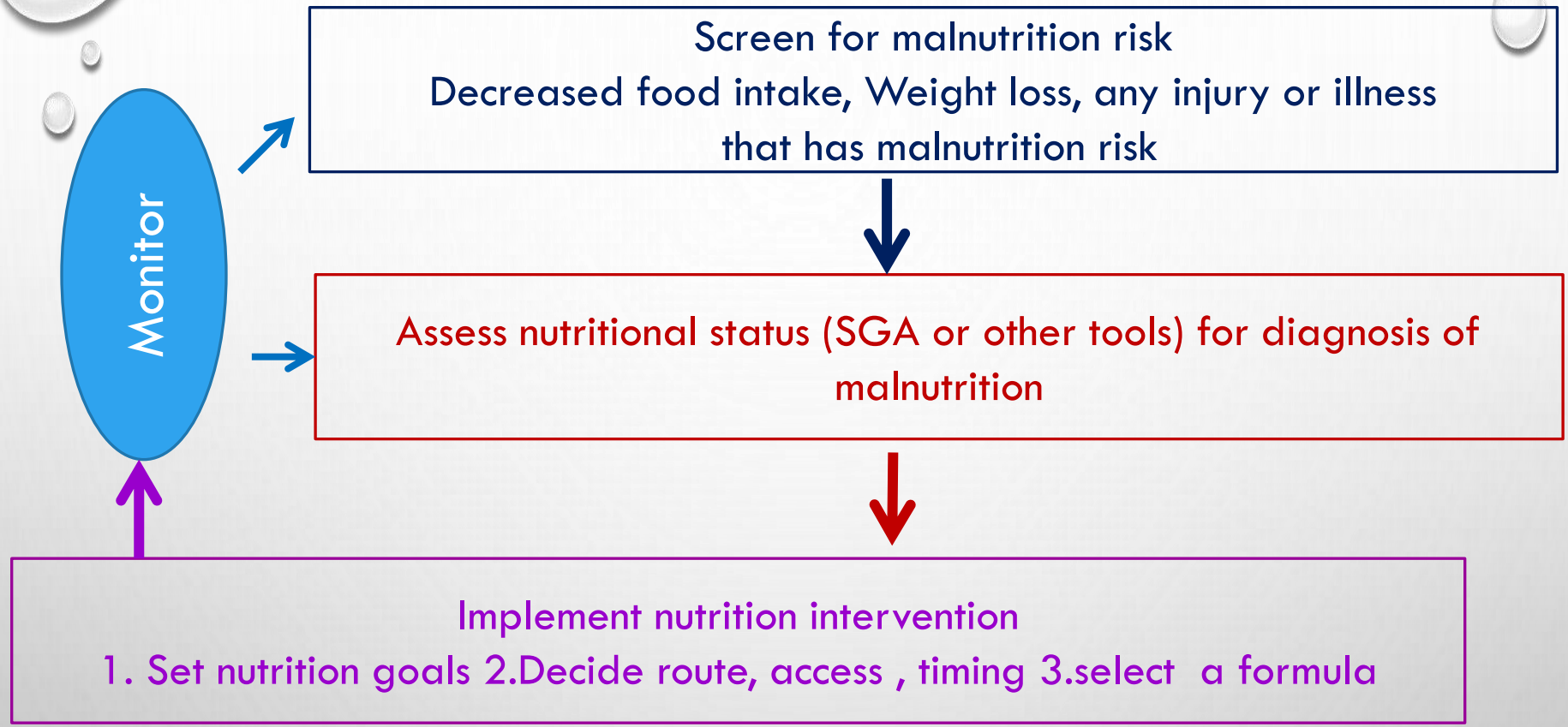
It is important to meet the nutrition needs of ageing adults

# NUTRITIONAL RECOMMENDATIONS FOR THE ELDERLY

- LIMIT THE USE OF PRODUCTS WITH A HIGH ENERGY DENSITY, SUCH AS SOFT DRINKS, ALCOHOL AND SNACKS
- EAT MORE FOOD WITH A FAVOURABLE NUTRIENT DENSITY
- EAT PLENTY OF FRUIT, VEGETABLES,
  WHOLE-GRAIN PRODUCTS EACH DAY
- EAT FISH TWICE A WEEK, INCLUDING OILY FISH ONCE A WEEK

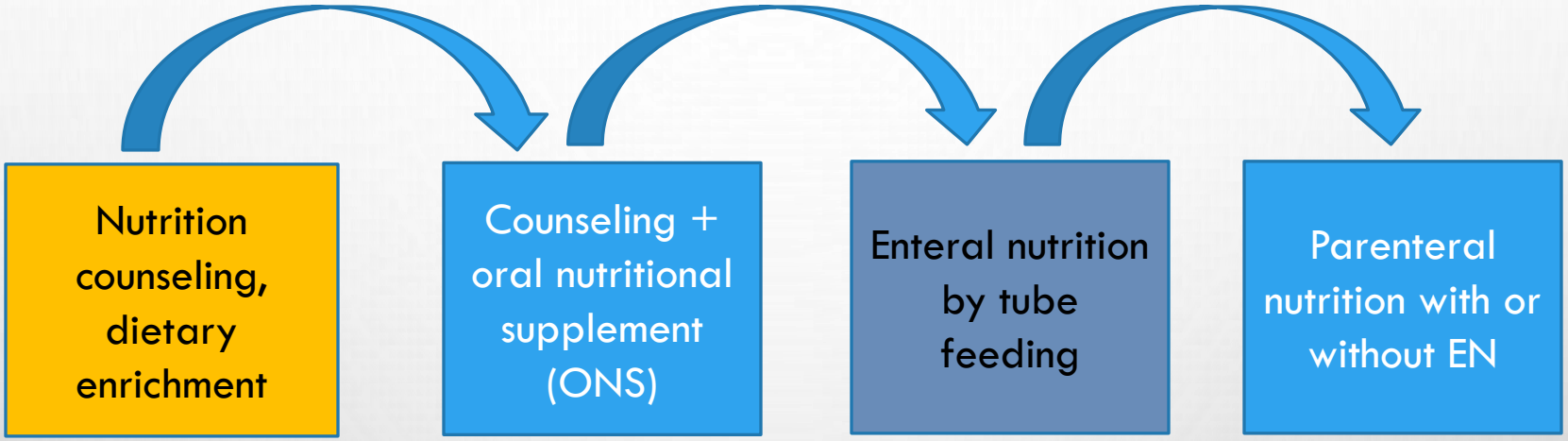
# E. NUTRITIONAL MANAGEMENT

# NUTRITION CARE PATHWAY




**Treat underlying cause of malnutrition at every stage**

# USE A STEPWISE APPROACH FOR NUTRITION INTERVENTION

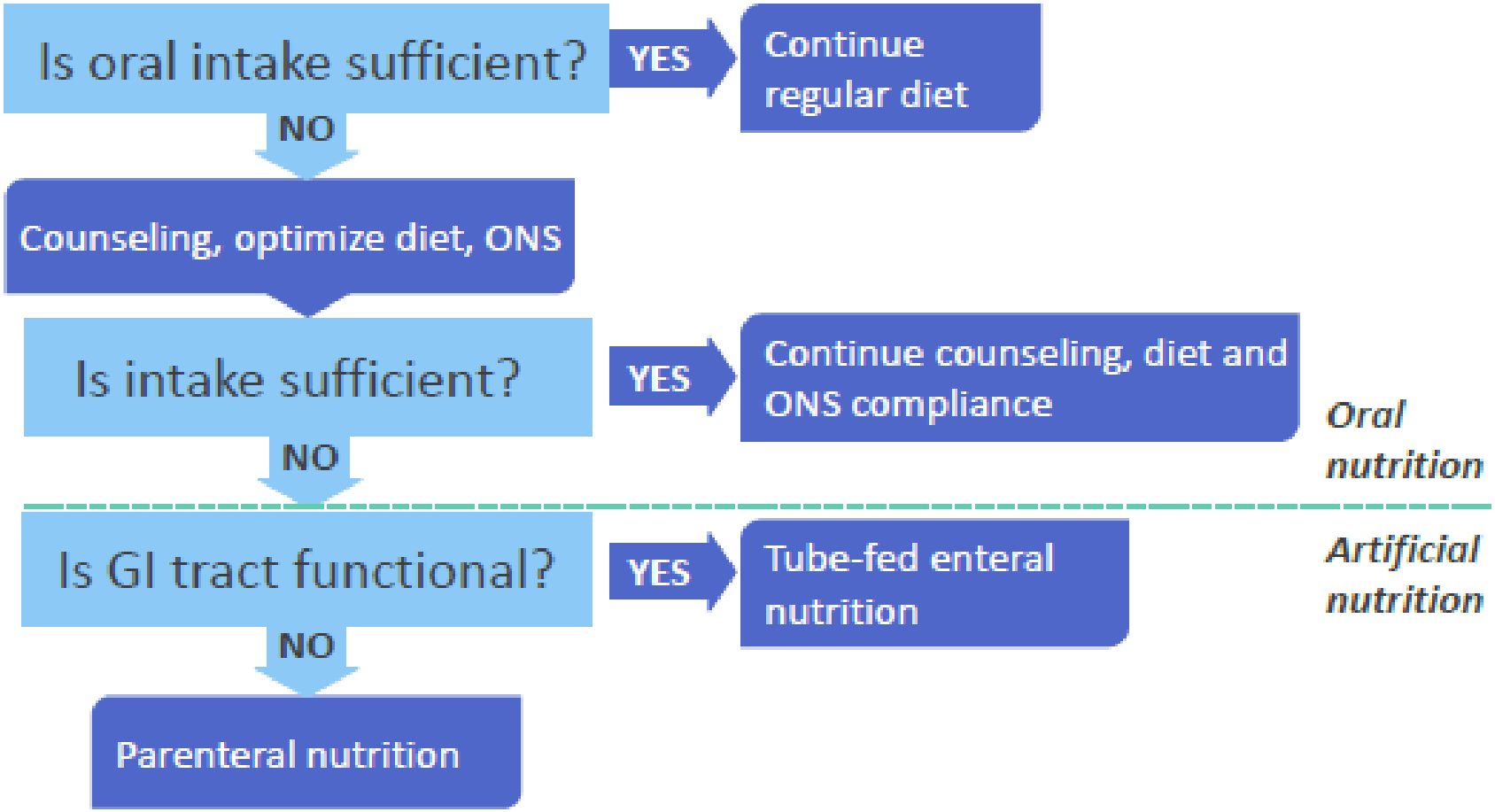



Treat underlying causes of malnutrition at every stage



Loser C. *Dtsch Arztebl Int.* 2010;107:911-917.

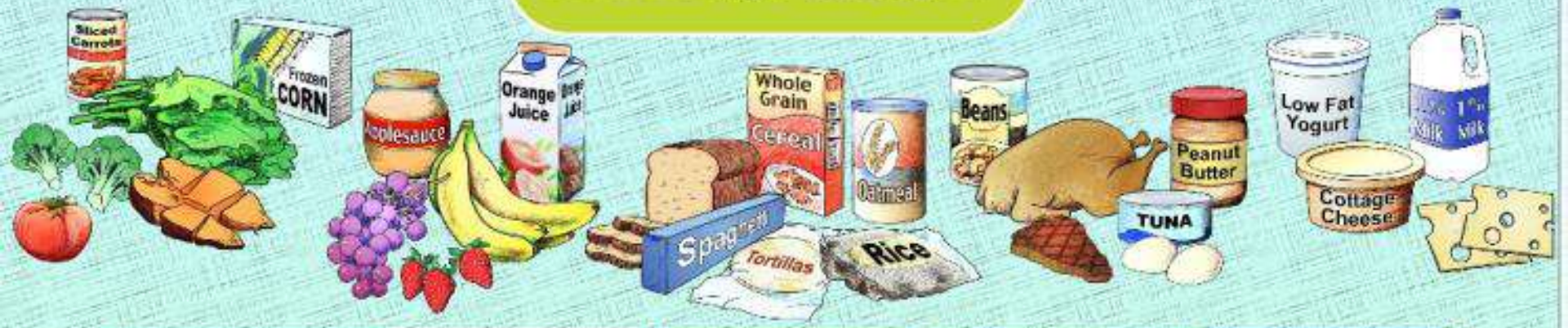
# DETERMINING THE FEEDING ROUTE: ORAL, ENTERAL OR PARENTERAL FEEDING





1.Volkert D, et al. *Clin Nutr*. 2006;25:330-360.
2.Elia M, et al. *Basics in Clinical Nutrition 4th edition;* 2011: 223-230.
3.Loser C. *Dtsch Arztebl Int*. 2010;107:911-917.

# MyPlate for Older Adults


| Vegetables | Fruits | Grains | Protein Foods | Dairy |
|---|---|---|---|---|

- Choose fiber-rich foods often.
- Drink water and other beverages that are low in added sugars.
- Use fortified foods or supplements to meet your vitamin D and vitamin $B_{12}$ needs.

# MYANMAR FOOD

# Oily Food
# Dyed Food

# SUMMARY

- MALNUTRITION IS COMMON IN OLDER ADULTS, AND PREVALENCE INCREASES WITH AGE
- PHYSIOLOGIC CHANGES OF AGEING  CAN AFFECT NUTRITIONAL STATUS
- DISEASES  AND OTHER MEDICAL AND SOCIOECOMIC FACTORS CAN PUT OLDER ADULTS AT HIGHER RISK FOR MALNUTRITION
- DISEASES AND DISABILITY MAY NEGATIVELY AFFECT NUTRITIONAL STATUS, AND ALTER NUTRITIONAL REQUIREMENTS

- AGE-RELATED CHANGES AFFECT NUTRITION NEEDS AND INTAKES
- MALNUTRITION-RELATED WEIGHT LOSS AND FRAILTY ARE PREVENTABLE IN MANY CASES
- OLDER ADULTS ARE AT RISK FOR MALNUTRITION AND NEED HIGHER DIETARY PROTEIN INTAKE
- NUTRITION SCREENING IS A SIMPLE, ONE-STEP PROCESS WHICH DETERMINES WHETHER A NUTRITION ASSESSMENT IS REQUIRED

- THE RESULT OF A NUTRITION ASSESSMENT DETERMINES WHETHER MALNUTRITION IS PRESENT AND HELP UNDERSTAND THE CAUSES AND RISK FACTORS RELATED TO THIS

- A NUTRITION CARE PATHWAY CAN BE USED TO GUIDE DECISION-MAKING FOR NUTRITION THERAPY

- GOOD NUTRITION THROUGH LIFE SPAN IS KEY TO HEALTHY AGEING AND LONGEVITY

# REFERENCES


- TOTAL NUTRITION THERAPY ,GERIATRIC :EUROPEAN UNION GERIATRIC MEDICINE SOCIETY(EUGMS)

- 18TH EDITION : GERITRICS AT YOUR FINGERTIPS

- NUTRITION SCREENING AND ASSESSMENT AT NYGH :PROFESSOR ZAW LYNN AUNG,18TH GP CONFERENCE

- MIN ZAW OO (2017) USEFULNESS OF MINI NUTRITIONAL ASSESSMENT IN ELDERLY HOSPITALIZED PATIENTS WITH SERUM VITAMIN D DEFICIENCY

# THANK YOU