(Nutritionally) Aging Well in America

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Older adults may seem to have an acceptable nutritional profile but then may decompensate when faced with a physiologic crisis.

Body composition changes will impact on how we assess and recognize nutritional problems in older adults.

Life Expectancy of Selected Populations

- Japan
- Australia
- Italy
- UK
- USA
- China
- Russia
- India
- Pakistan
- Nigeria
- South Africa
Nutritional markers??

Albumin has traditionally been used to identify malnutrition
Normal levels ~3.5-5g/dL
Albumin is a negative acute phase protein
It is not a reliable indicator of nutrition
Reliance on serum albumin as a clinical and research tool may need to be re-evaluated

Nutritional Assessment

- Anthropometric measures
- Laboratory measures
- Immunologic measures
- Dietary intake
- Drug profile
- Socioeconomic factors
- Functional assessment

Just because older adults may appear “well-nourished”, they may be subclinically malnourished
Weight changes (losses or gains) may be related to a variety of risk factors.

Weight gain factors include:
- Decrease in activity
- Decreased basal metabolic rate
- Effects of drugs
- Changes in eating habits/diet
- Increasing disability

Weight loss factors include:
- Disease-related anorexia
- Disease-related cachexia
- Effects of drugs
- Changes in eating habits/diet
- Increasing disability

Weight gain is as important a problem as is weight loss.
If energy intake does not decline but activity level does, the result is a gain in weight.

Lifestyle changes need to be made to sustain effective weight loss in older adults.

Changes may include dietary patterns, activity levels, nutrition education, cooking suggestions.

Weight loss should be slow and steady and easy to manage.
The goal should be to maintain an acceptable weight before disability associated with obesity becomes an extraordinary burden.

One of the factors in weight change is hydration status, fluid shifts, and fluid intake.

Fluid requirements have become an issue of interest.

Dehydration may be associated with:
- hypotension
- elevated body temperature
- constipation
- nausea/vomiting
- mucosal dryness
- decreased urinary output
- mental confusion
Fluid intake can be estimated at 30 ml/kg body weight with a minimum of 1500 ml/day

Recommendations for 8 glasses of fluid per day may be an overestimation of fluid needs for older adults

Thirst is actually a bigger issue

Fluid can be consumed in many forms such as juices, other beverages, frozen desserts, anything liquid at room temperature
Voluntary intake may be compromised for many reasons:

- mild incontinence
- inconvenience
- decreased thirst sensitivity
- dementia

Sometimes involuntary intake is inadequate, too.

In addition to changes in overall energy and fluid needs, requirements for other essential nutrients change too.

Nutrient requirements may change with age due to physiological, health status, body composition, and activity level changes.
Key nutrient requirement changes:

- Protein
- Vitamin B₁₂
- Vitamin A
- Vitamin D
- Calcium
- Energy related to decreased activity level

Protein requirements are affected by:

- decrease in total LBM
- loss of efficiency in protein turnover
- increased need to heal wounds, surgical incisions, repair ulcers, make new bone
- infection
- immobilization

RDA for adults is 0.8 g/kg/body weight
For older adults, requirements are for 1.0 g/kg/body weight or more

Vitamin B₁₂

Assuring adequate vitamin B₁₂ is a challenging goal throughout the life cycle but particularly in older adults
Vitamin B₁₂
- Is primarily available in animal protein sources
- Has a complex transfer and absorption pattern
- Has a vague presentation of deficiency
- May be associated with a decline in cognitive function

Vitamin A requirements are altered by age due to alterations in hepatic Vitamin A metabolism

There has been discussion about lowering preformed Vitamin A recommendations for older adults.

Beta carotene does not have any negative side effects other than its accumulation in serum, potentially causing discolored epidermis.
Beta carotene seems to have a protective effect for epidermal tissue cancers.

Vitamin D is a nutrient that older adults are at risk for deficiency.

Risk factors for Vitamin D deficiency:
- inadequate dietary intake
- inadequate sunlight exposure
- decreased synthesis in skin (7-dehydrocholesterol)
- diminished renal function – reduced hydroxylation

Vitamin D is essential to manage:
- Falls and fractures prevention
- Osteoporosis and dentition
- Cognition
- Immune function
- Blood pressure
- Colon cancer (?)
Energy needs decline with a reduction in metabolically active cell mass: protein and bone.

Energy needs increase with demands for wound healing, fracture repair, infection response.

To maintain weight, 20-25 kcals/kg body weight is usually adequate in a relatively sedentary adult.

For stress, wound healing, infection, fracture, energy needs may increase to as much as 35 kcals/kg body weight.
Vitamin A is needed for cell differentiation

Cell differentiation processes allow for the development of different tissues

Vitamin A requirements in wound healing should not exceed 200% of the RDA

Vitamin C
- Status is related to dietary intake
- Institutionalization, hospitalization and illness lead to sharp decreases in vitamin C intake
- Decreases seen with chronic disease including atherosclerosis, cancer, senile cataracts, lung diseases, cognition, and organ degenerative diseases
- Vitamin C is easily replaced
- Smokers may need 2x RDA just to meet requirements
- Vitamin C is important in wound healing because of its role in hydroxylation but tissue saturation is achieved easily and large doses are excreted in urine

Getting old in America is challenging but nutritional challenges can be managed with creativity and ingenuity and patience