

Nutrition therapy in patients with systemic sclerosis



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Case presentation

A 57 years-old male with weight loss of 20 kg within 10 months, fatigue, mild dysphagia, mild reflux, normal appetite, early satiety, no diarrhea, mild, but progressive dyspnea, chesty cough, no fever, pneumonia 2 months ago

Height: 178 cm, weight 57 kg, BMI 18.

What is the problem of this person with scleroderma?

What are the problems in SSc?

Systemic sclerosis is an autoimmune disease requiring more energy than healthy persons

Cachexia, a result of a chronic inflammatory disease
loss of muscle mass with stable fat mass

Patients with systemic sclerosis have problems with nutrition intake

depressions with low appetite

problem preparing meals

money to buy healthy food

low GI movements

very rare malabsorption

starvation (catabolism by pure energy deficiency)

Patients have accelerated aging due to disease or medications

sarcopenia (age-related muscle loss in the context of dieting, physical immobility, or growth hormone deficiency)

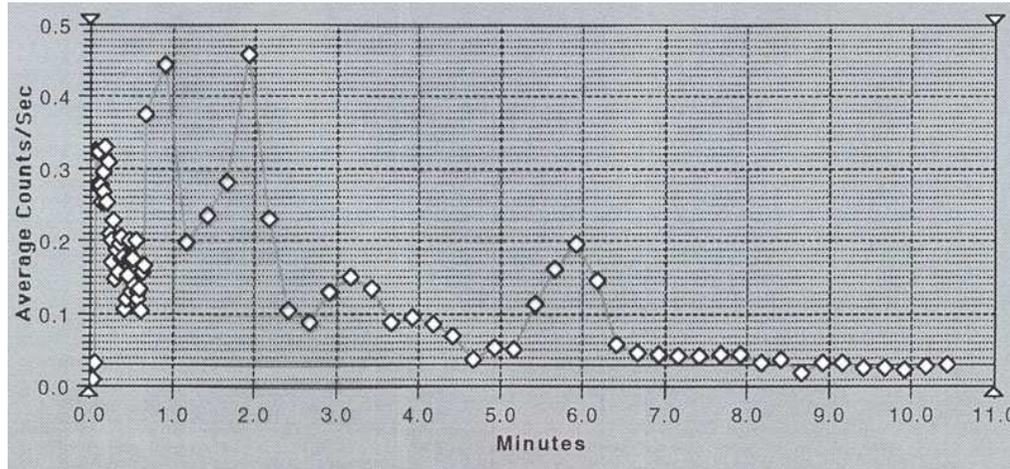
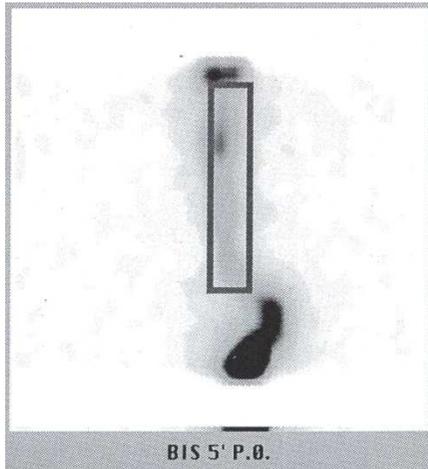


A lot of patients have problems with their teeth: sicca syndrome, periodontosis



Upper gastrointestinal tract

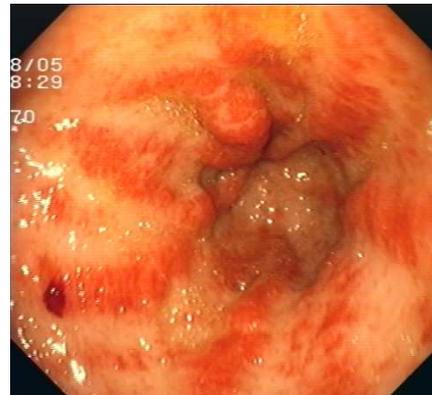
Esophagus scintigraphy: delayed passage in the upper esophagus



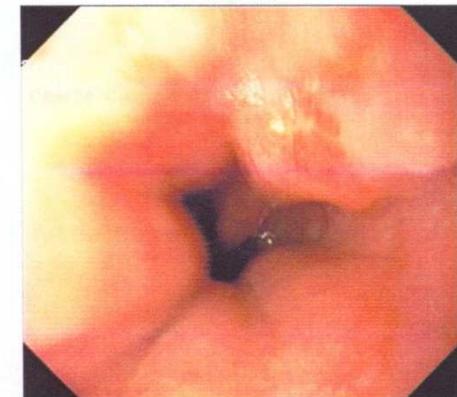
Peritrast passage



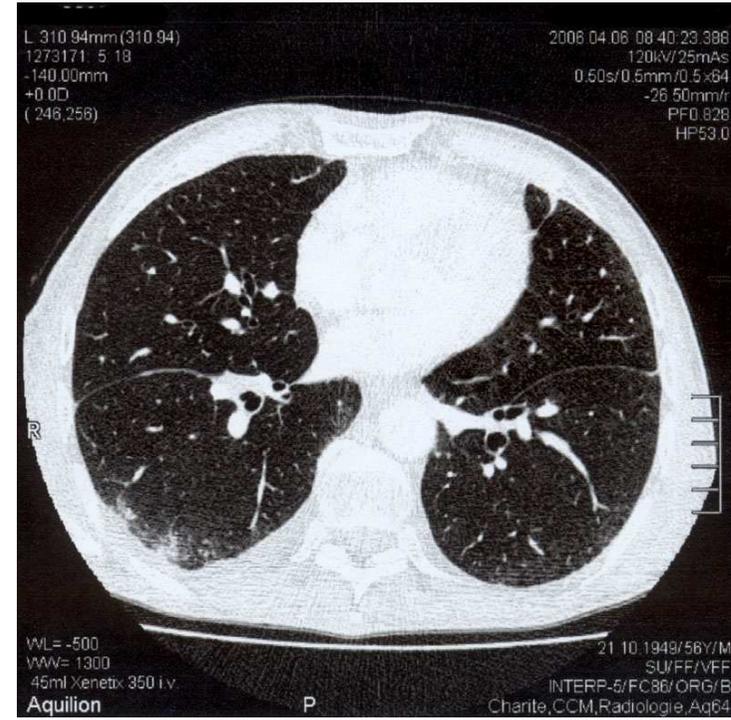
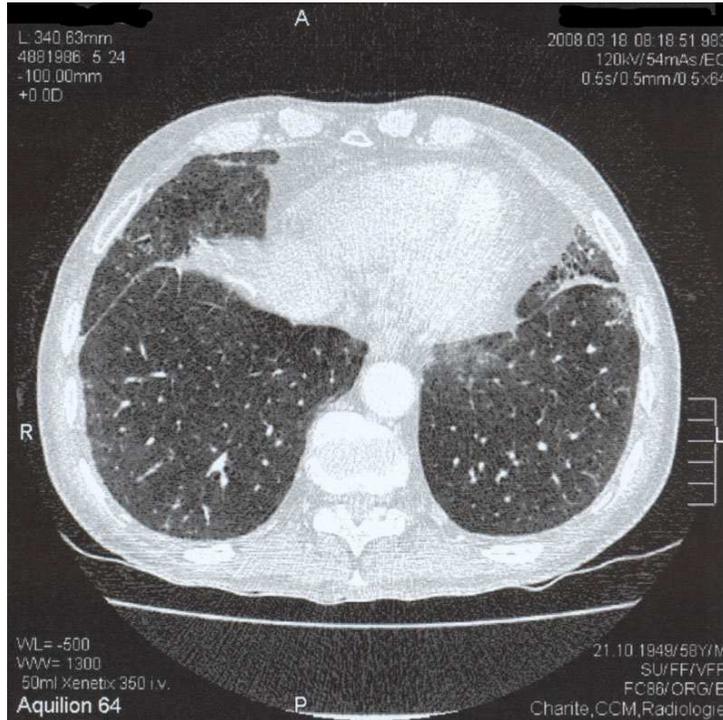
Water melone stomach,



Reflux esophagitis



our patient



Small intestinal bacterial overgrowth (SIBO) in systemic sclerosis

Marie I et al., *Rheumatology* 2009; 48:1314-1319

H₂/CH₄ breath test



51 SSc patients were investigated
49% diffuse, 51% limited disease, 11 patients
received immunosuppression

43.1% of the patients were SIBO +

Parameter	SIBO +	SIBO -	P-values
Abdominal pain	86,4	31	0.0001
Diarrhoea	50	10,3	0.0034
Bloating	77,3	44,8	0.0246
Constipation	59,1	3,4	0,00001
Abd. tenderness	54,5	6,9	0,0027

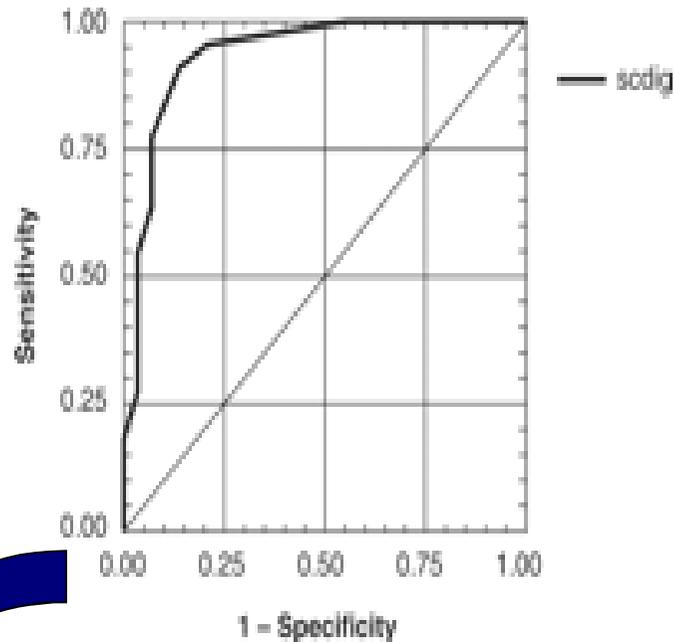
administration of 50 g glucose in 250 ml sterile water

Positive test: H₂/CH₄ > 20 p.p.m above basal value, >10 p.p.m
in two consecutive measurements, and others

Small intestinal bacterial overgrowth in systemic sclerosis

Marie I et al., *Rheumatology* 2009; 48:1314-1319

ROC analysis
≥ 5 GI symptoms



Eradication with rotating antibiotics, 7 days/months, e.g. with 2 x 400 mg Norfloxacin/d, followed by 3 x 250 mg Metronidazol /d

Parameter	Tx +	Tx -	P-Wert
Abdominal Pain	27,2 %	90 %	0.008
Bloating	18,1 %	70 %	0.03
Diarrhoea	0 %	60 %	0.004
abdominal tenderness	9,1 %	50 %	0.06

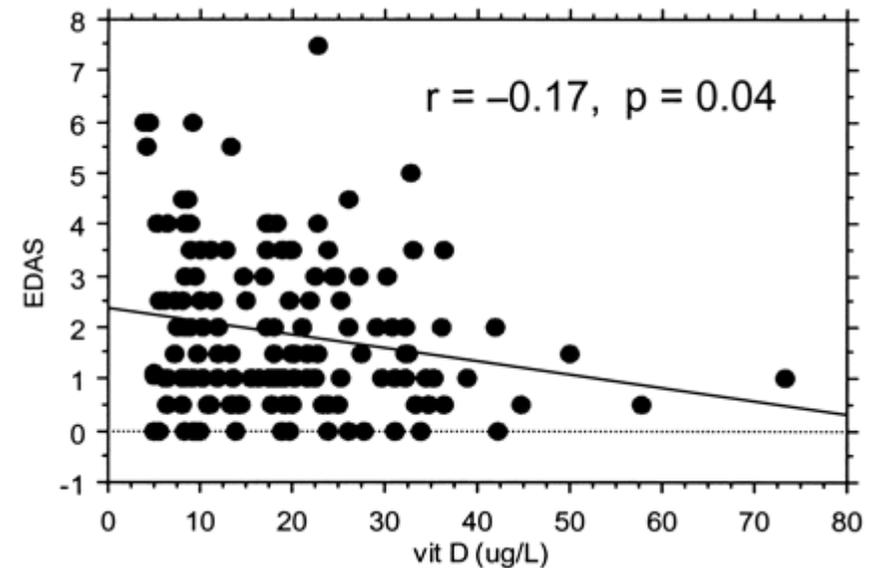
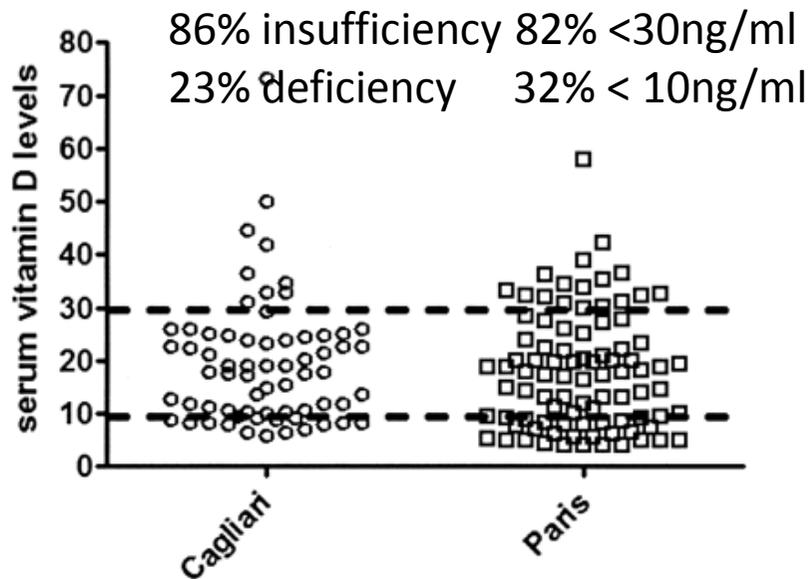


Small intestine bacterial overgrowth is frequent and should be recognized

Vitamin D-Deficiency in patients with systemic sclerosis

Vacca-A et al., *J. Rheumatol.* 2009;36:1924-9

Detection of vitamin D between 09/07-05/08, PTH, Ca, P in 90 consecutive patients from France (north) and 66 Italy, some of these patients received vitamin D 800 IU/d



Assoziation of vitamin D deficiency with sPAP, ESR, CRP, Lung fibrosis,
no associations with calzinoses, acroosteolyses

How to identify malnutrition?

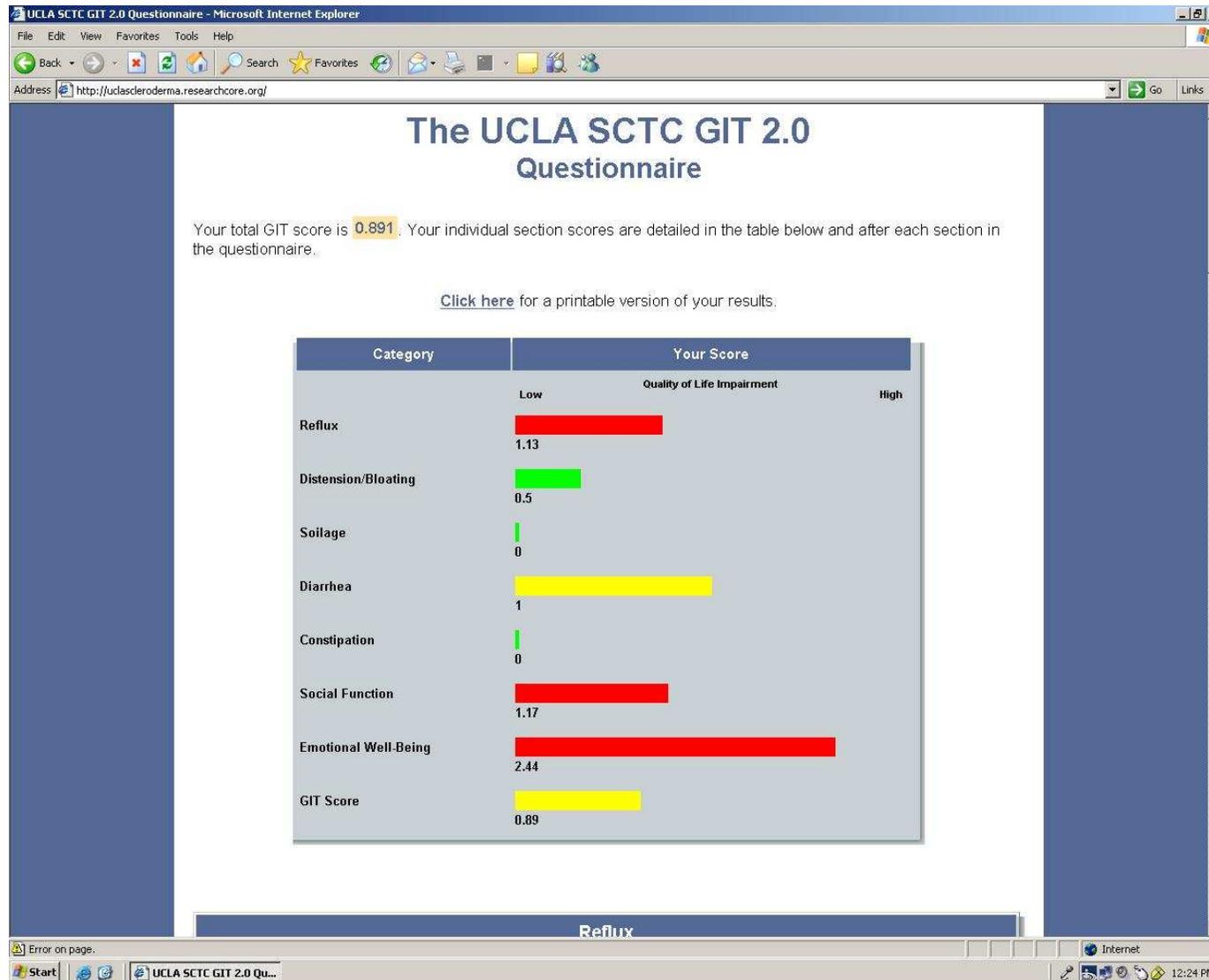
There are different methods ...

- Questionnaires: Malnutrition Universal Screening Tool score (a score analysing weight loss) other
- Body Mass Index kg/m^2 : often used for the decision to give nutrition therapy
- BioImpedance Analysis: analysis of the electrical resistance

Symptoms of malnutrition

- Unexplained 10% or more weight loss over a 3 months period
- Weakness and muscle wasting
- Excessive or new onset fatigue
- Increased susceptibility to infection
- Delayed wound healing
- Brittle nails and excessive hair loss
- Excessively dry and flaky skin

UCLA SCTC 2.0 – 5-minute screen and Rx plan



UCLA SCTC 2.0 – 5-minute screen and treatment plan

- Reflux scale → anti-reflux and PPIs
- Distention/Bloating scale → Malabsorption or delayed gastric emptying
 - PLUS Diarrhea → trial of antibiotics +/- promotility agents
 - No Diarrhea → trial of promotility agents
- Constipation → stimulant laxatives, good bowel regimen
- Fecal soilage → refer to colorectal surgeon
- “Out of proportion” emotional symptoms → ?Irritable Bowel Syndrome

A useful approach: www.thenuttynutritionist.com
lindakaminski@thenuttinutritionist.com

As suggested by Denish Kahan

Why it malnutrition and why it is important to treat?

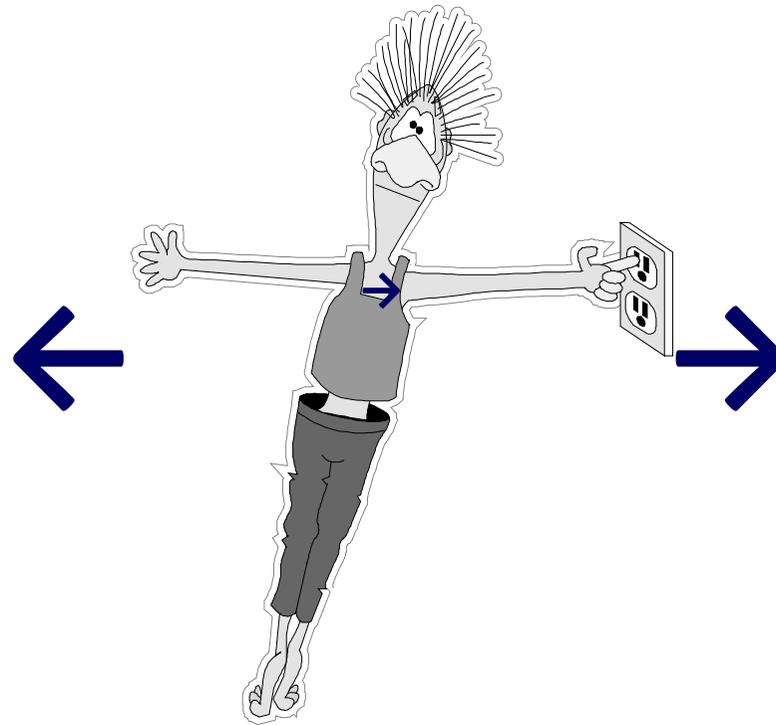
Definition:

- Malnutrition is a deficiency of energy, protein, or other nutrition elements including vitamins leading to changes of the body compositions
- Consequently, malnutrition does not mean absence of fat, fat people also can be malnourished

why treatment?

- energy deficiency can counteract with defense mechanisms of the body to receive a healthy status
- protein and energy deficiency can impair healing e.g. of digital ulcers

Both people could have the same weight and the same energy uptake



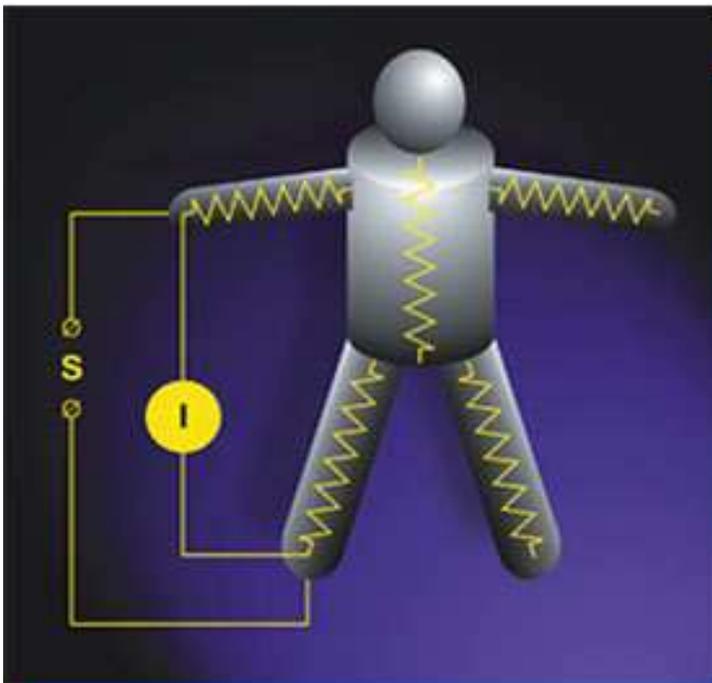
Energy uptake without exercise

Energy uptake with exercise

Bioelektrische Impedanzanalyse (BIA):

- fast
- reproducible
- non invasive
- easy to use

Sensitivity to change, high reliability



Method is used in oncology,
gastroenterology, nephrology

Nutrition status measured by phase angle values compared To age-and sex-matched persons

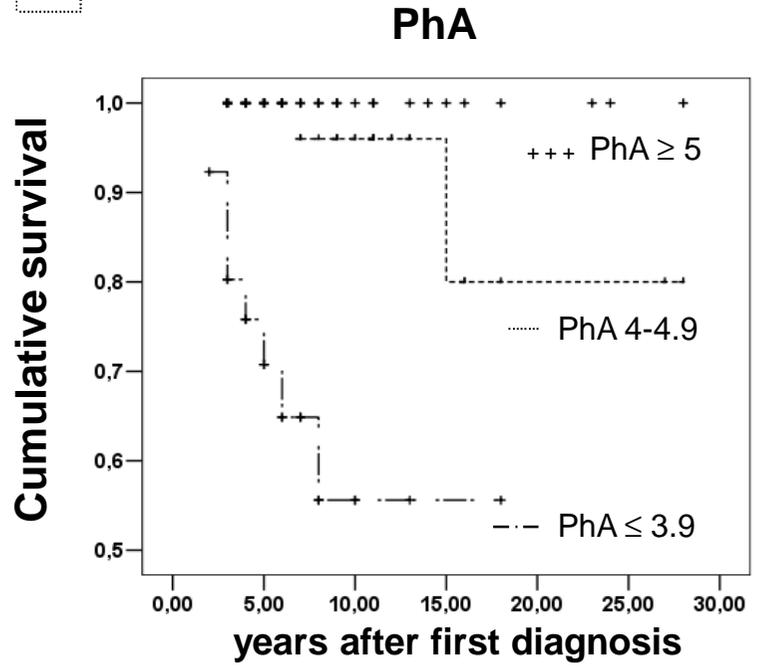
Aga (years)	18-29	30-59	60-69	> 70	all patients
Good Nutrition status	28.6	41.2	57.1	35.7	44.4
Abnormal nutrition status	71.4	58.8	42.9	64.3	55.6

**In addition: 50% of the patients revealed energy deficiency,
in 20% of the patients energy uptake lower than basal metabolism**

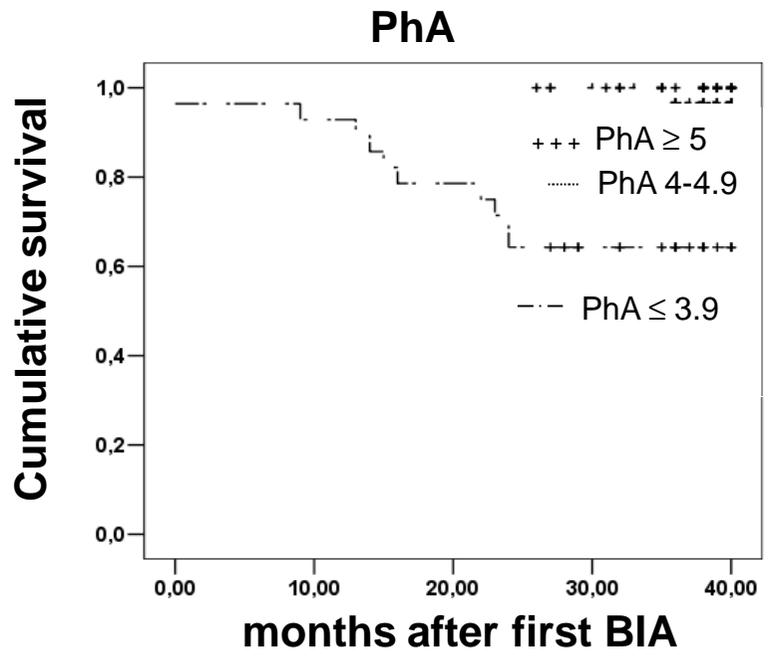
Associations between nutrition status and SSc features

	PhA \geq 5 good nutrition status	PhA 4.9-4.0 bad nutrition status	PhA < 3.9 insufficient nutrition status	significance
ESR	22,39 \pm 20,87	20,90 \pm 15,44	49,39 \pm 34,80	p < .001 ***
FVC values	93,46 \pm 17,78	89,12 \pm 16,23	73,53 \pm 16,77	p < .001 ***
modified Rodnan skin score (MRSS)	7,49 \pm 7,49	8,33 \pm 7,30	14,25 \pm 11,43	p = .009 **
cardiac involvement	31,9%	33,3%	75,0%	p = .002 **
presence of muscle atrophy	46,7%	50,0%	75,0%	p = .037 *
presence of muscle weakness	45,7%	57,9%	75,0%	p = .018 *
disease duration	5,16 \pm 5,64	7,26 \pm 6,07	3,84 \pm 3,58	p = .041 *
age	53,00 \pm 10,45	55,21 \pm 15,99	55,44 \pm 13,91	p = .631
BMI	23,36 \pm 3,39	23,08 \pm 4,30	23,34 \pm 6,81	p = .953
presence of digital ulcers	25,5%	38,5%	42,1%	p = .092
nausea	34,8%	35,1%	35,0%	p = .542
reflux	63,0%	63,2%	75,0%	p = .250
constipation	28,3%	34,2%	20,0%	p = .391

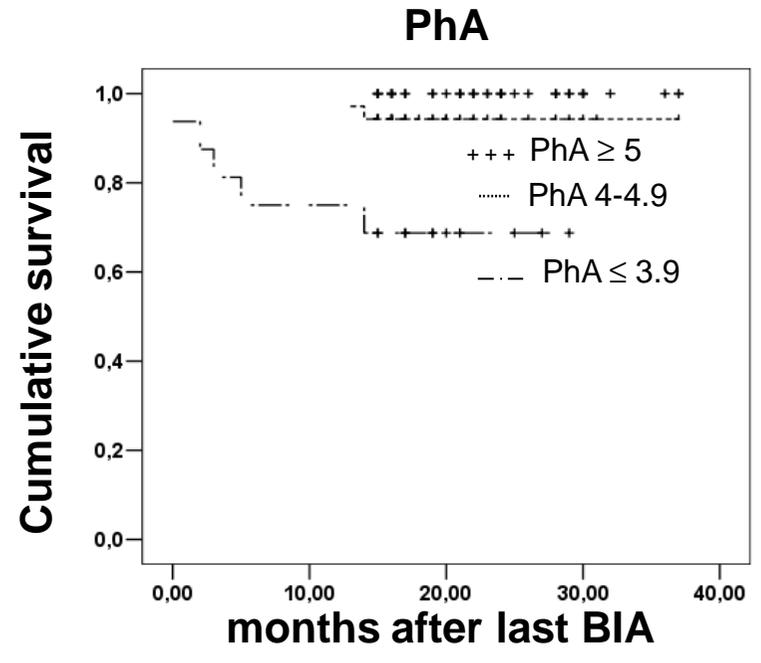
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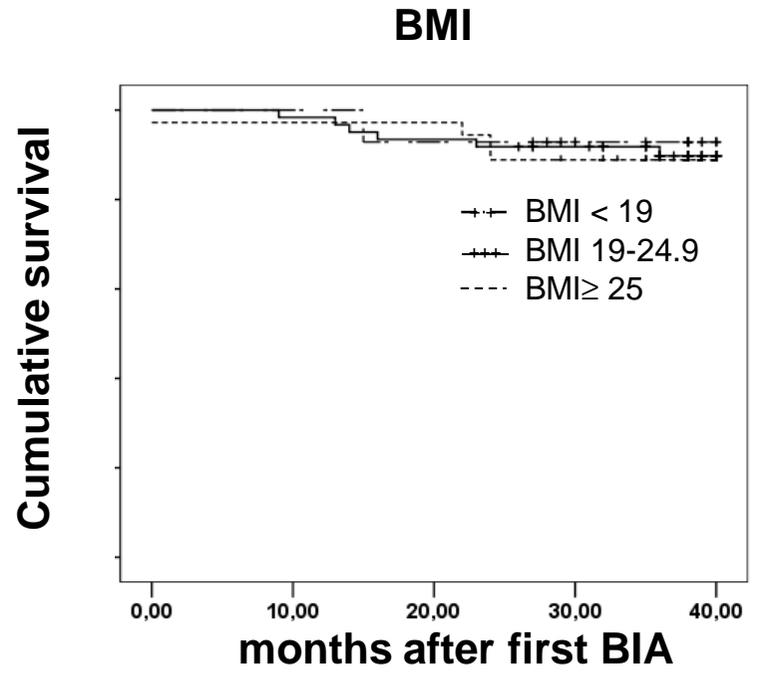
b



c



d



How to improve malnutrition in patients with SSc?

- There are no guidelines in SSc patients, no special diet
- There are different reasons for malnutrition
- Nutrition is part of the life and of the individual education
- Nutrition is a lot of habit and religion
- Patients differently tolerate foods
- General recommendations such as to eat more fruits and vegetables are often not helpful
- You need knowledge, time (and sometimes money)

What do we already know from other diseases as well as from SSc?

Patients with SSc have a 10-fold increased risk for arteriosclerosis



one glass alcohol/day is useful

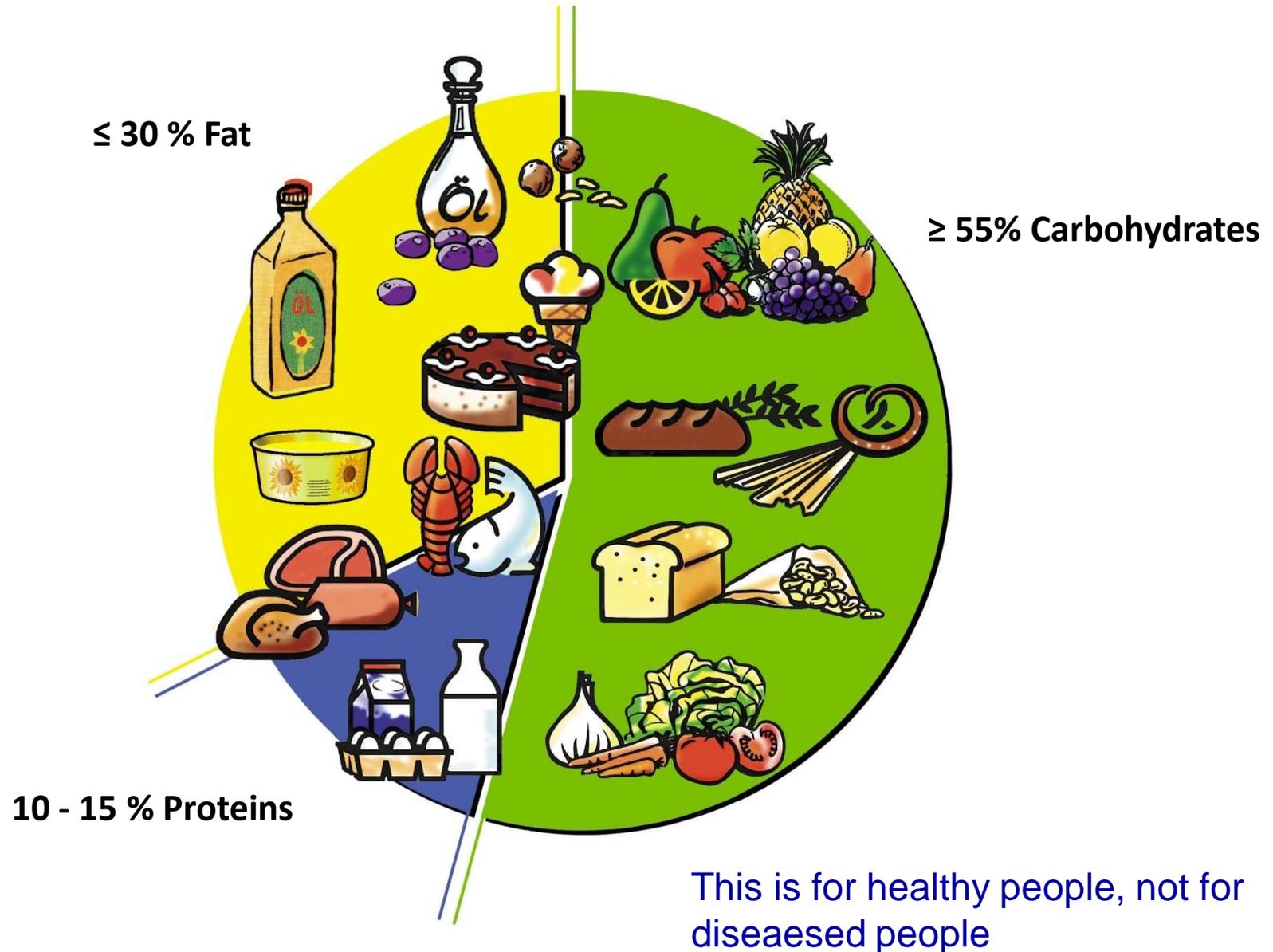
chocolate is useful, at least 100g/week

smoking is harmful, stop it

Creatine 0,15g/kg daily can increase muscle function

most SSc patients have not increased cholesterol levels,
fat is rich of energy and vitamin (EDEKA)

General nutrition recommendations according to ESPEN guidelines



Nutrition and exercise, not only „healthy food“



This is something for freaks and artists

Our approach to address malnutrition

There are international (ESPEN) S3 guidelines for enteral nutrition therapy in malnourished patients using a step-wise approach.

1. first step: dietary counselling (DC) by a nutrition expert based on the individual nutrition, energy and protein deficiency, and body composition assessed by BIA.
2. Regular food will be improved to reach normal energy and protein uptake (1.2-1.5 g/kg body weight/d protein uptake, 35 kcal/kg body weight/d) and to improve PhA values above the 10th percentile of age-, sex-, and BMI-matched controls.
3. If no significant changes in PhA values are reached, patients will receive oral high-caloric and protein-rich nutritional supplements (ONS) 200ml once or more often a day as needed with 1.3-1.5 kcal/ml and 10g/protein/100 ml.
4. If no improvement, thinking about parenteral nutrition

Summery

Recognition of malnutrition and its reasons is crucial in SSc

A lot of patients have pure energy deficiency and the disease requires energy, too

Best method to identify malnutrition in Bioimpedance analysis

Malnutrion is common, but can only been treated in an individual approach

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