Voeding voor, tijdens en na thoraxheelkunde

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Eveline Vanhalewyck, diëtiste

PENTALFA sessie 21 november 2019
Rol van therapeutische diëten of exclusiediëten – toegevoegde waarde van een voedingsstrategie

Outline

- Inleiding
  - ERAS, chirurgie en rol van nutritie
- Longchirurgie
- Slokdarmchirurgie
- Praktisch in UZ Leuven

Inleiding

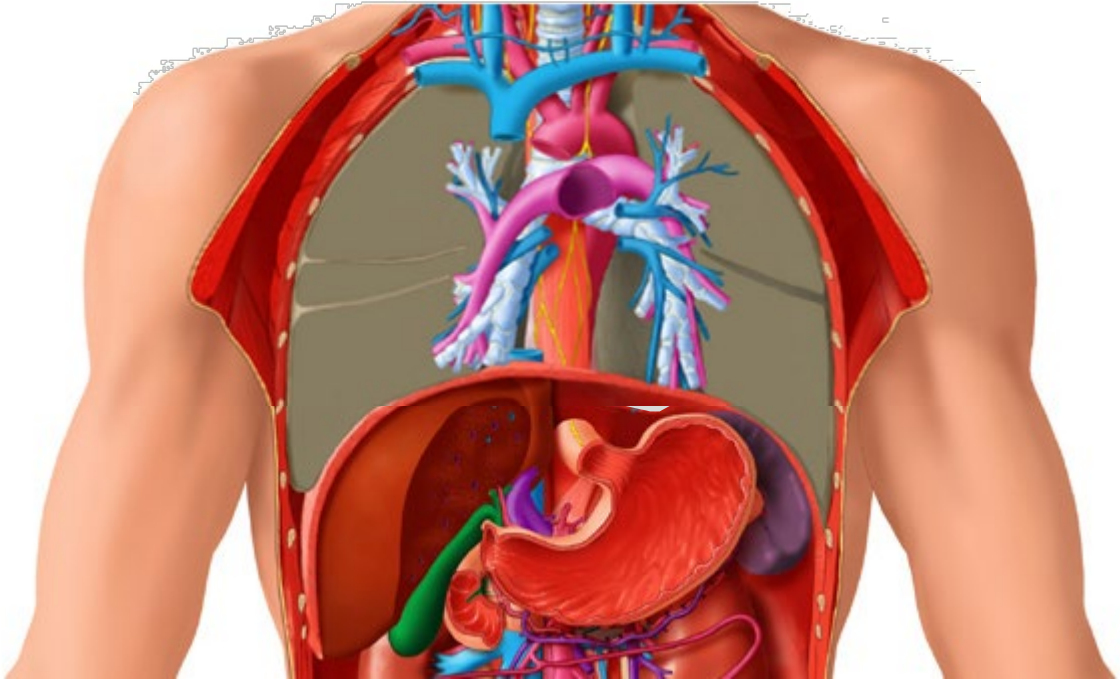
Voeding en chirurgie?

- ‘If the patient survives the operation, we ’ve beaten the cancer’



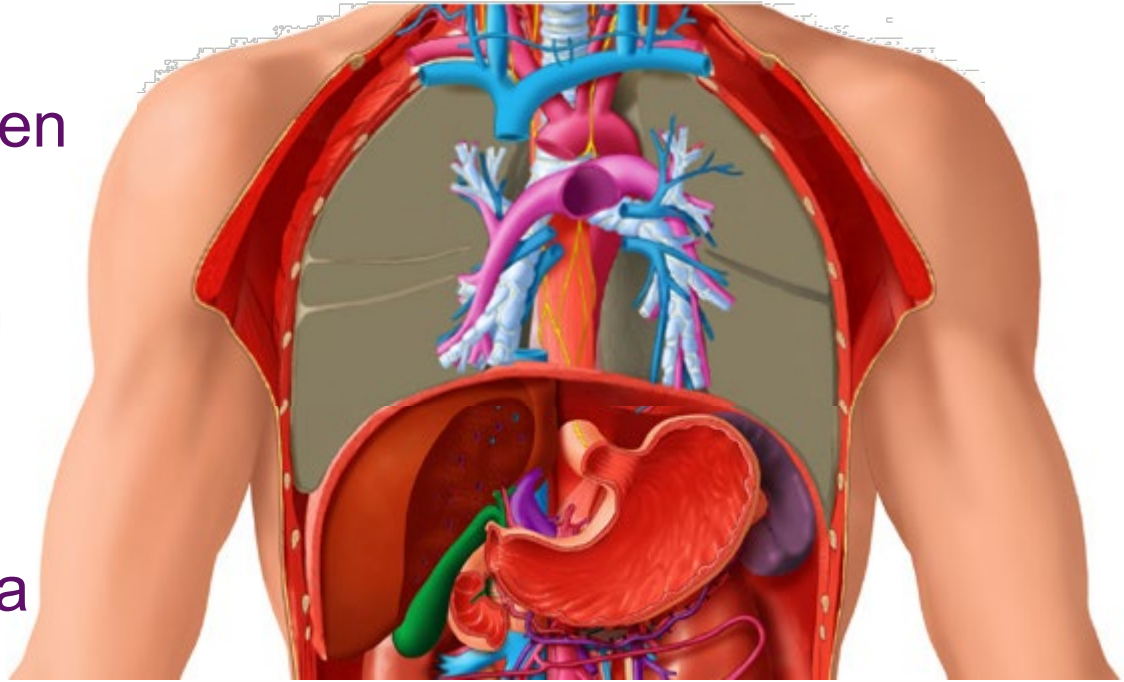
Wat is thoraxheelkunde?

- **Niet**: heelkunde op hart en grote vaten



Wat is thoraxheelkunde?

- **Wel**: heelkunde op
  - thymus
  - luchtwegen
  - longen
  - slokdarm
  - borstkas
  - pleura
  - diafragma



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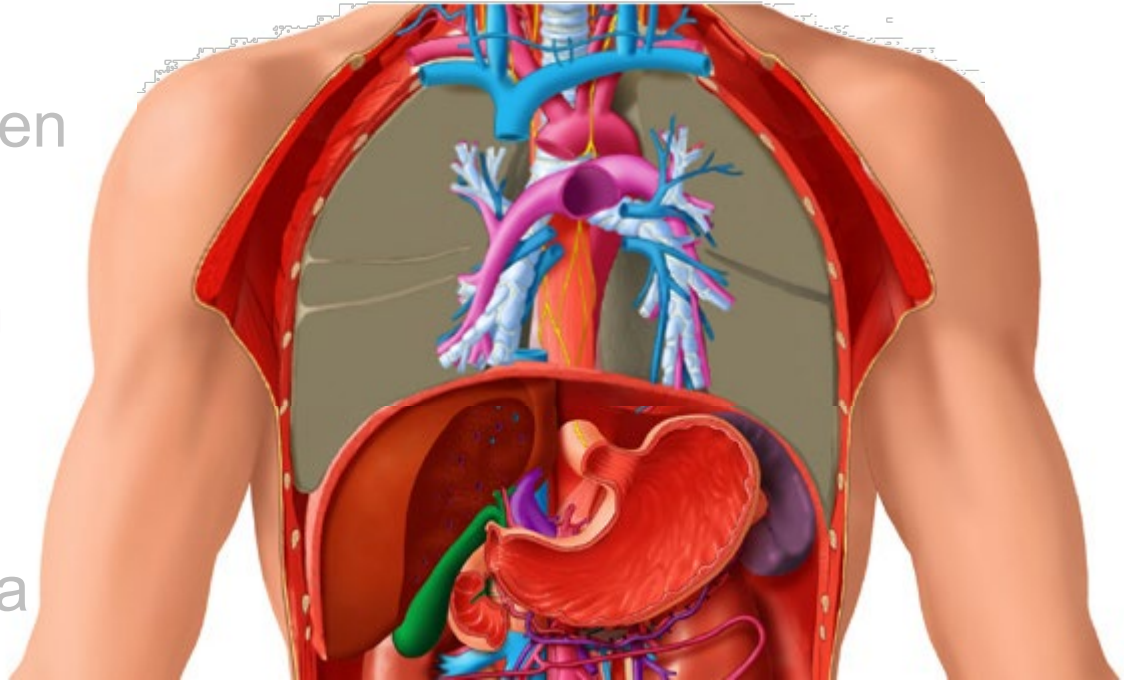
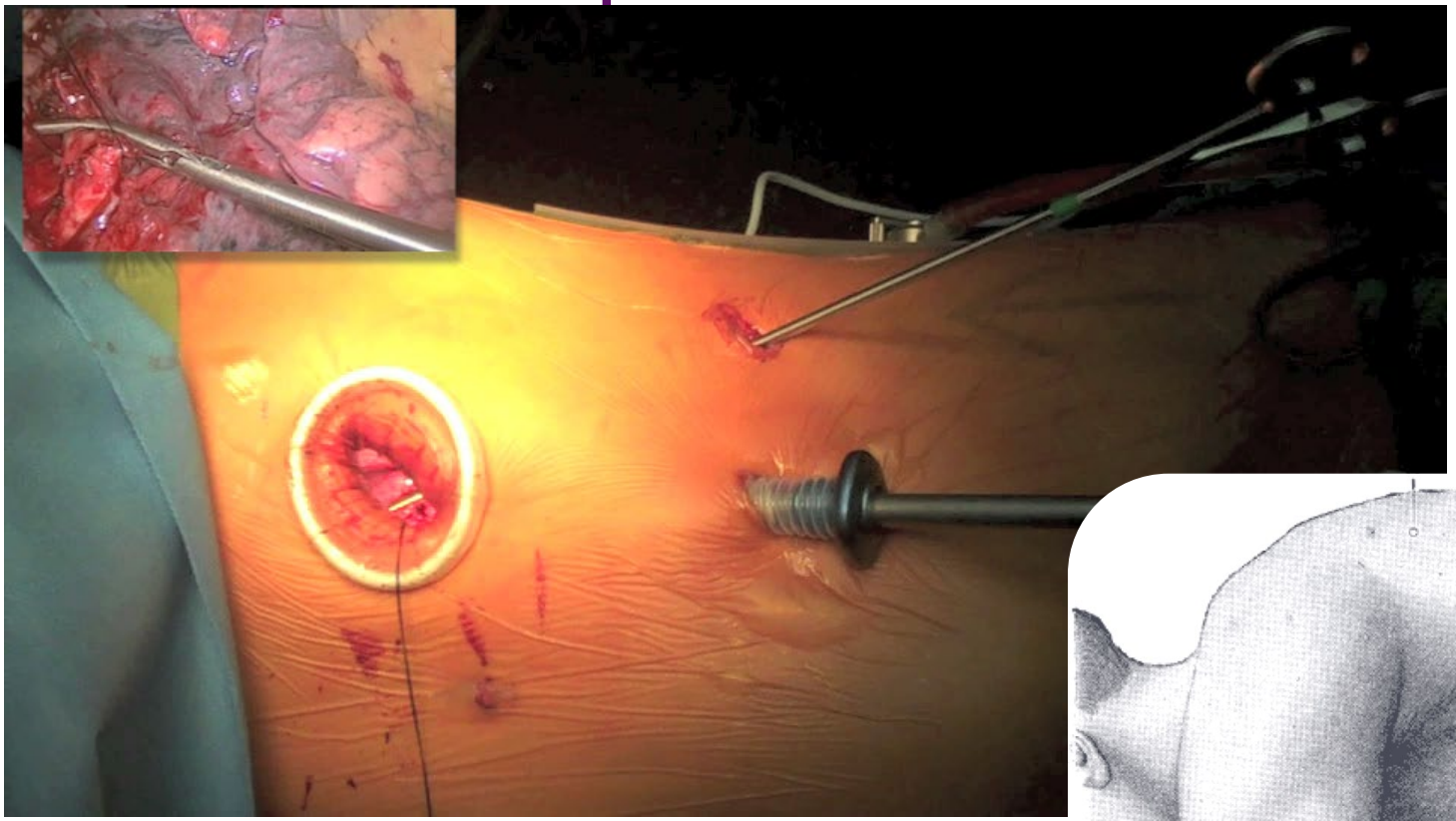
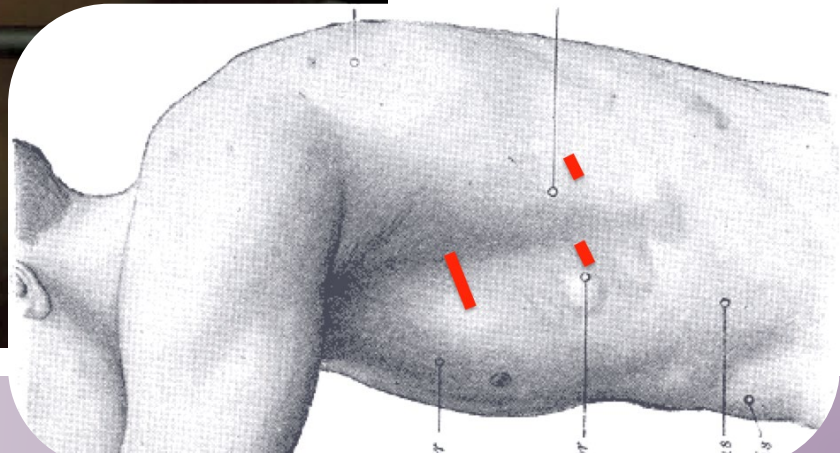


Types chirurgie

Thoracoscopische lobectomie

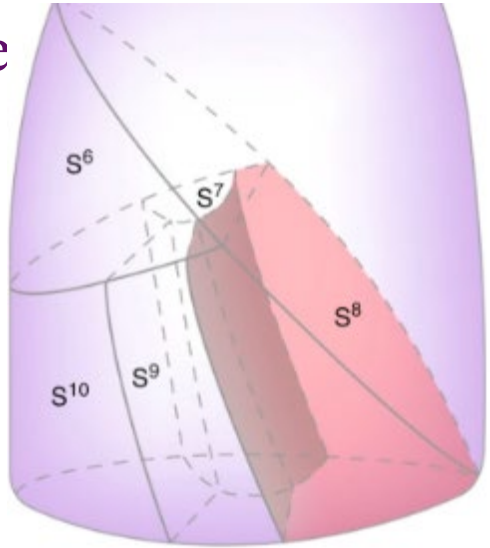




Thoracoscopische segmentectomie

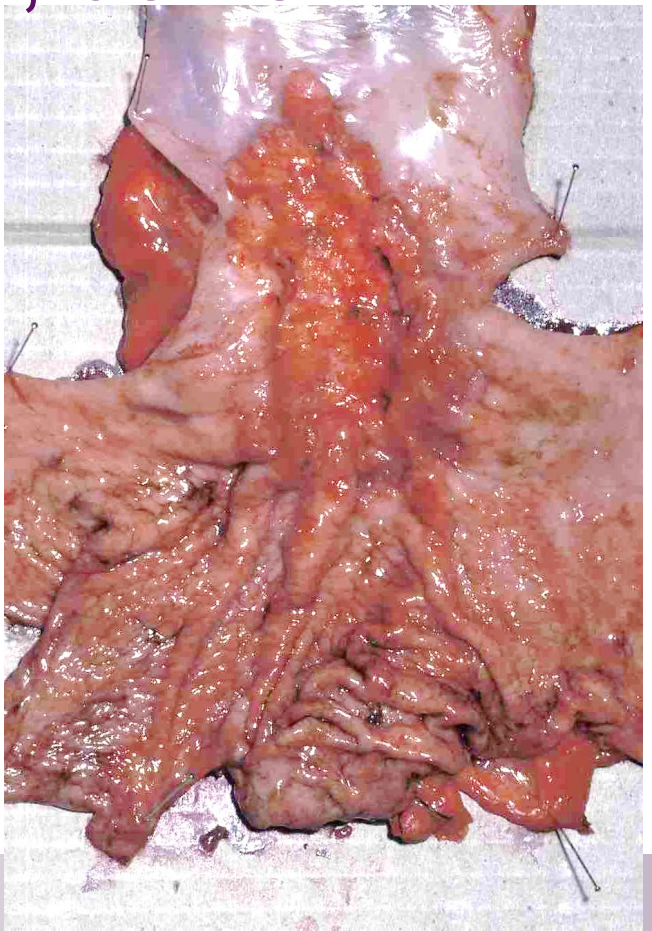


Uniportal
Seg 8
Invasieve
Adeno

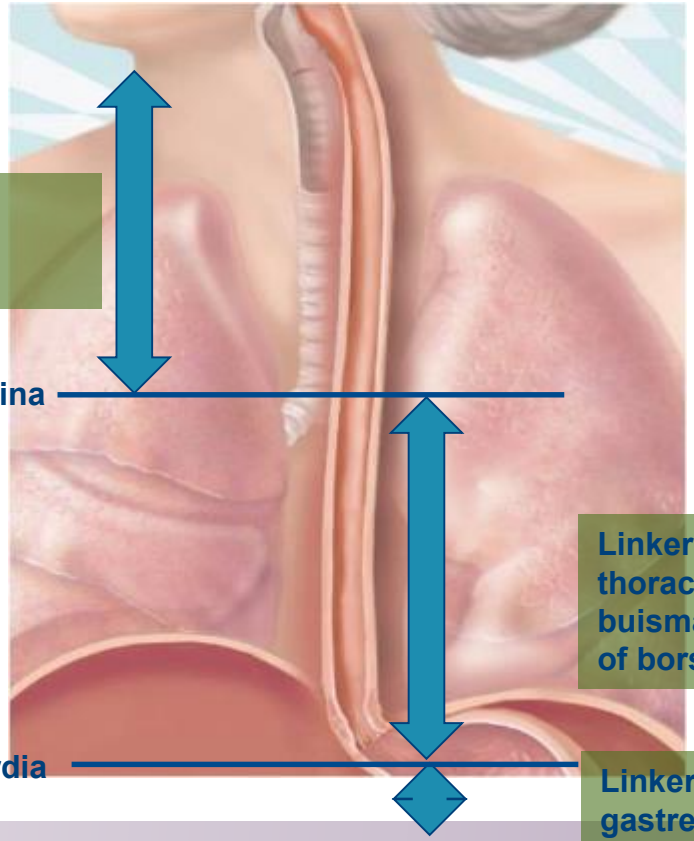


Courtesy J. Sonett

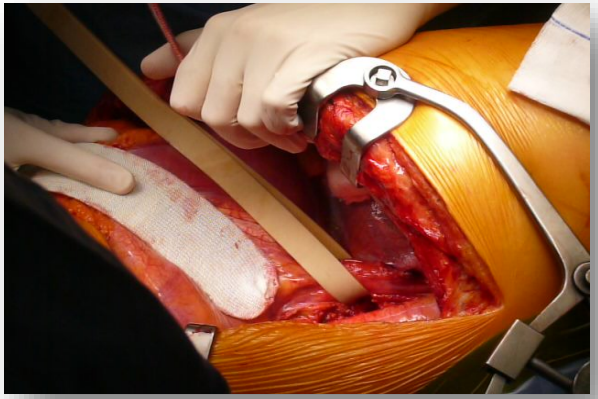
“Is’t kanker, dokter?”

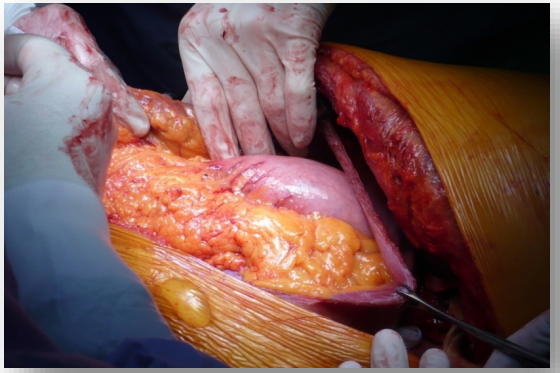


Voorkeuren toegang

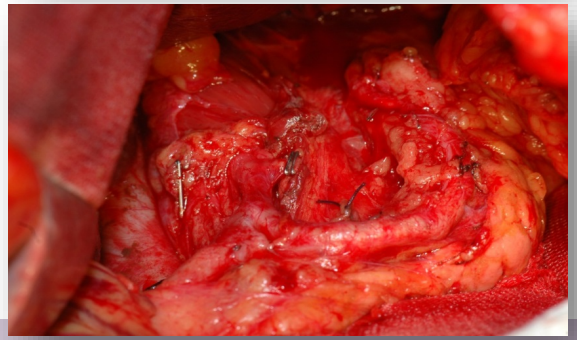


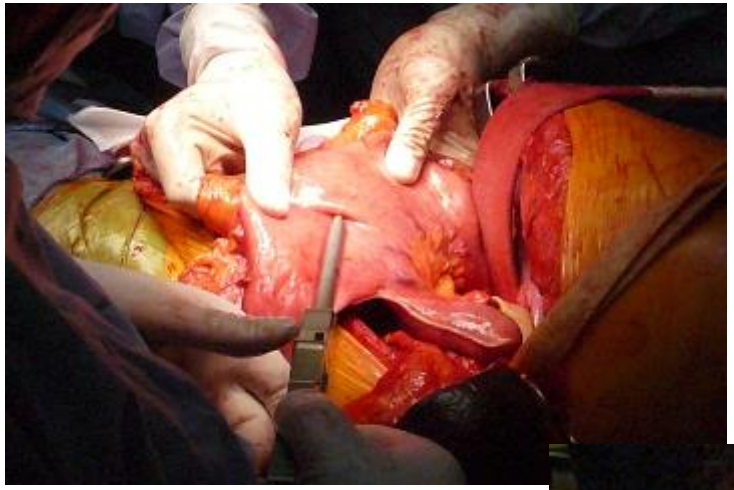
Linker thoracofrenolaparotomie

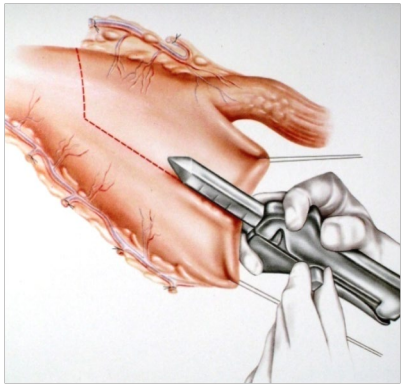






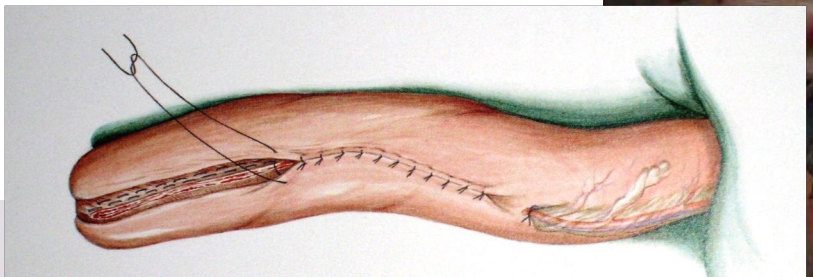


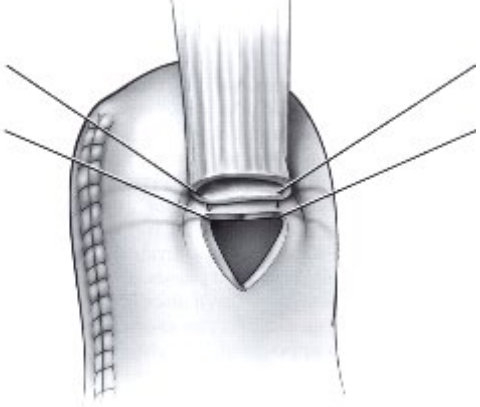


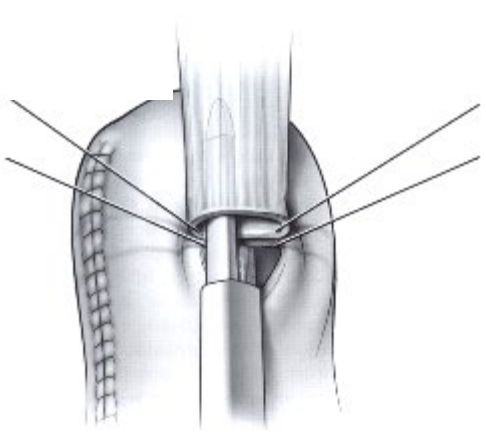


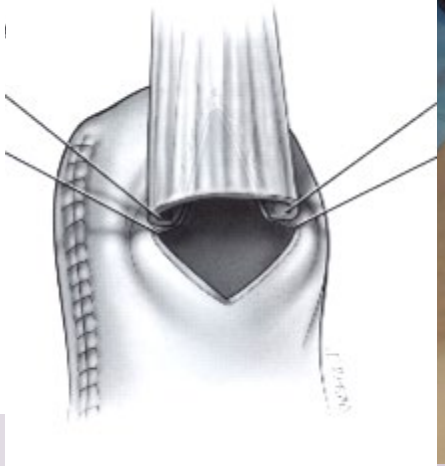


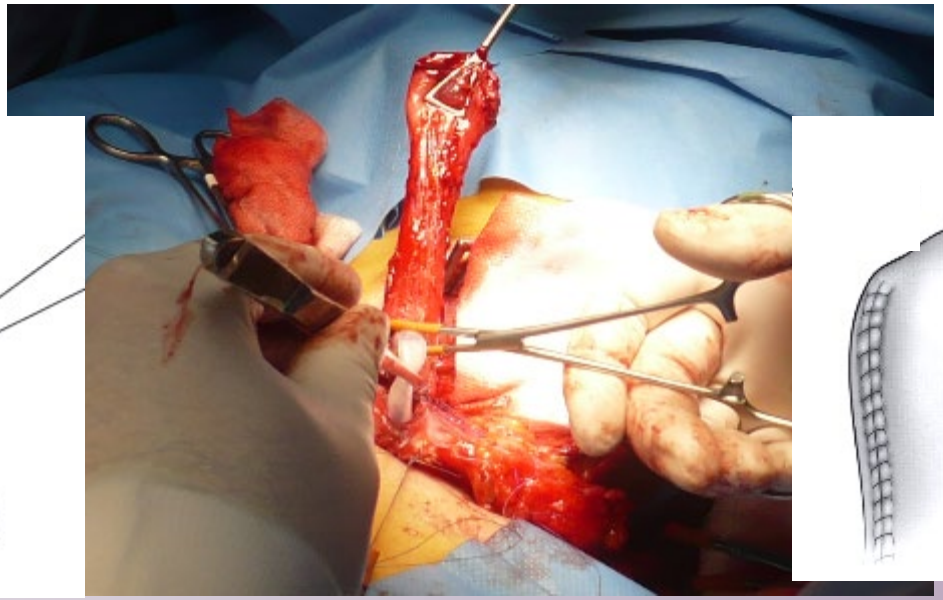


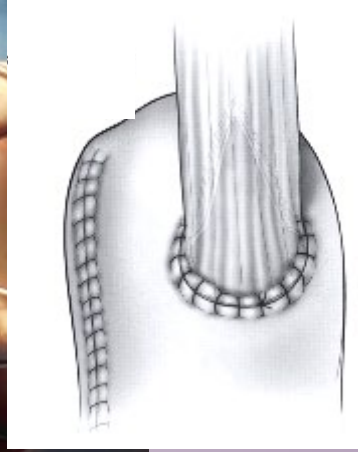




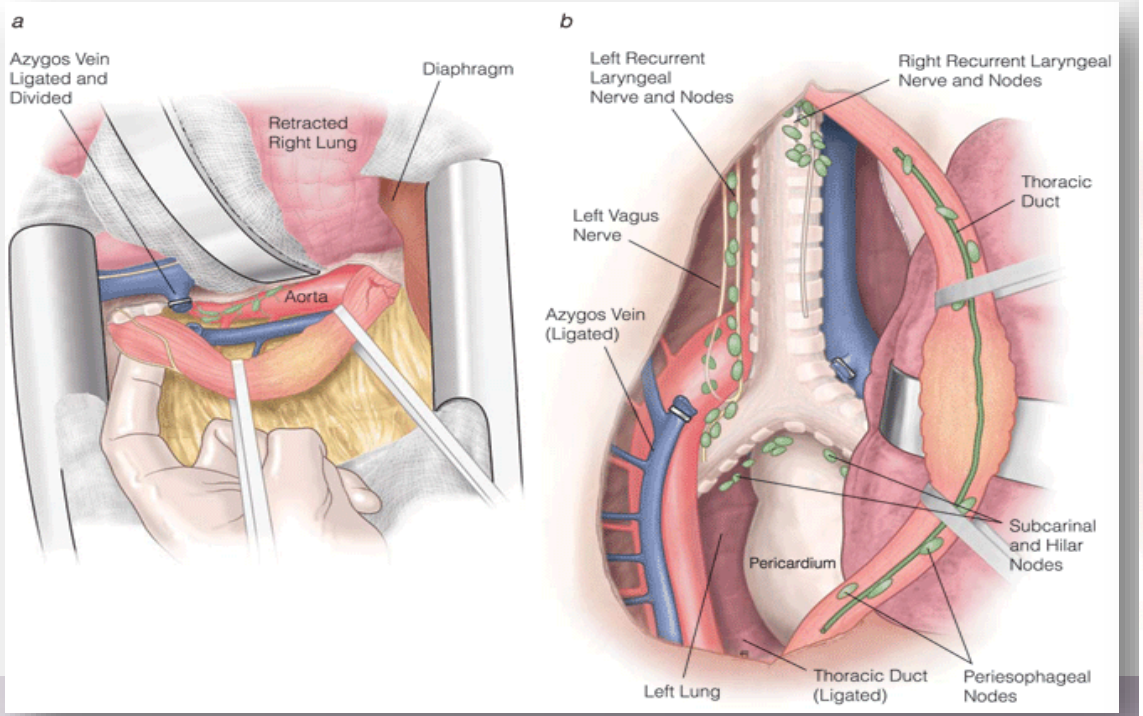


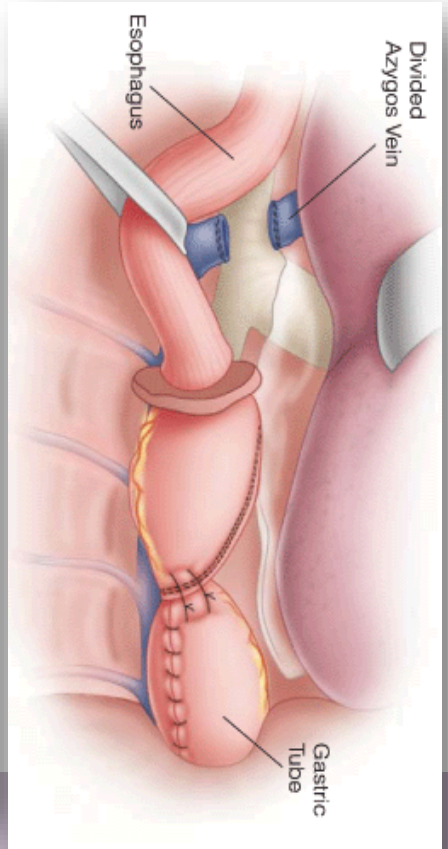




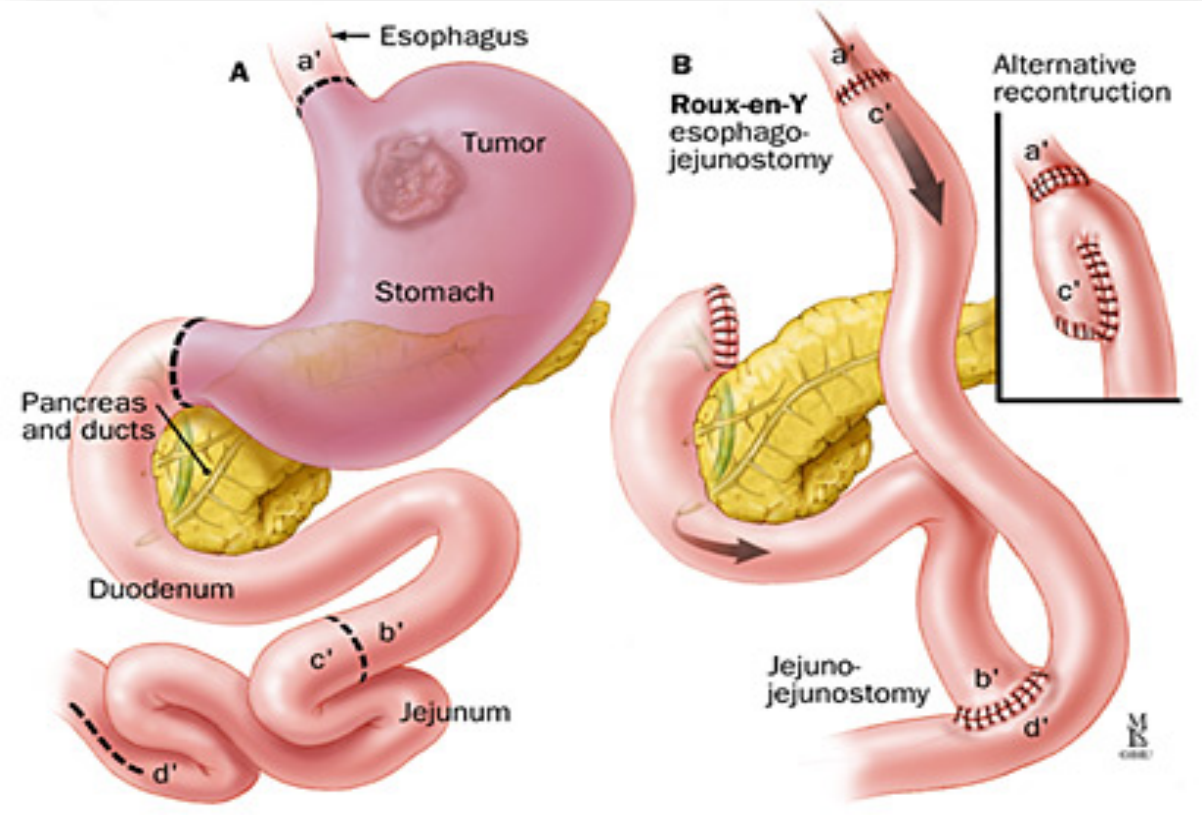


3-Hole esophagectomy: R thoracotomie, laparotomie + cervicotomie



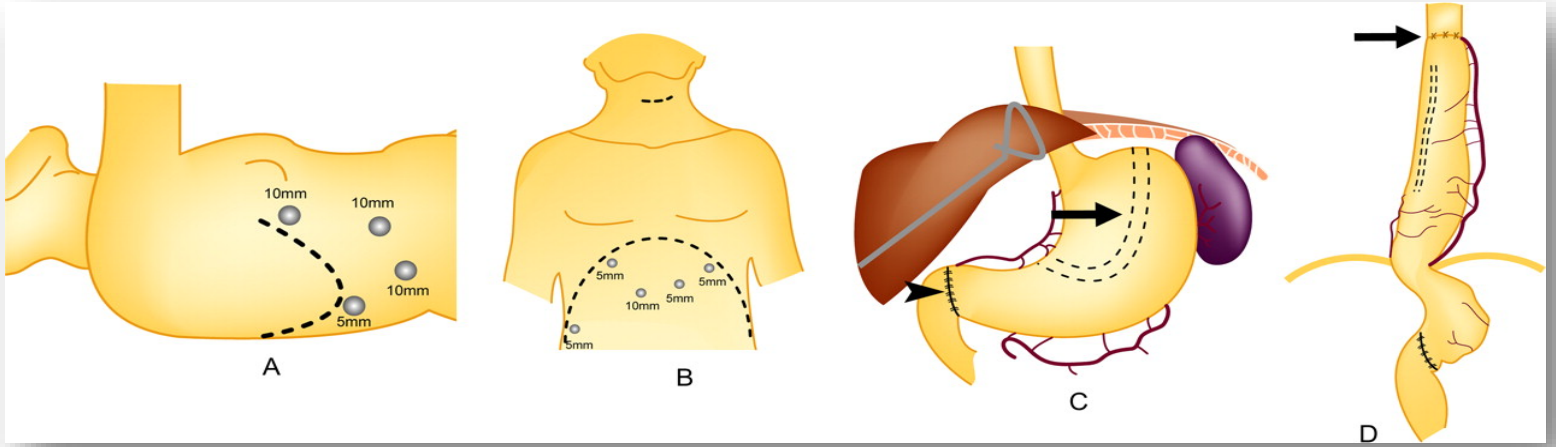


Totale gastrectomie: ROUX-en-Y



Can we do better?

The Minimally Invasive Way ?





Surgical nutrition & guidelines

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ESPEN guideline: Clinical nutrition in surgery

Arved Weimann [a, *], Marco Braga [b], Franco Carli [c], Takashi Higashiguchi [d], Martin Hübner [e], Stanislaw Klek [f], Alessandro Laviano [g], Olle Ljungqvist [h], Dileep N. Lobo [i], Robert Martindale [j], Dan L. Waitzberg [k], Stephan C. Bischoff [l], Pierre Singer [m]

ESPEN Guidelines 2017

update van de

- 2006 ESPEN Guideline for Enteral Nutrition: Surgery and Transplantation
- 2009 ESPEN Guideline for Parenteral Nutrition: Surgery
- 2003 Guideline of the German Society for Nutritional Medicine (DGEM) Clinical Nutrition in Surgery

- ESPEN guideline: Clinical nutrition in surgery
  - 1. Preliminary remarks – Principles of metabolic and nutritional care
    - 1.1. Nutrition therapy
    - 1.2. Preoperative nutritional care
      - 1.2.1. Nutritional "metabolic" risk and disease-related malnutrition
    - 1.3. Surgery
    - 1.4. Postoperative management of metabolism and gut function
    - 1.5. Evidence of nutritional therapy
  - 2. Methodology
    - 2.1. Aim of the guideline
    - 2.2. Methodology of guideline development
    - 2.3. Search strategy
  - 3. Basic questions
    - 3.1. Is preoperative fasting necessary?
    - 3.2. Is preoperative metabolic preparation of the elective patient using carbohydrate treatment useful?
    - 3.3. Is postoperative interruption of oral nutritional intake generally necessary after surgery?
  - 4. Indication for nutritional therapy
    - 4.1. When is nutritional assessment and therapy indicated in the surgical patient?
      - 4.1.1. Enteral vs. parenteral
      - 4.1.2. Enteral tolerance and timing of PN
      - 4.1.3. Hyperglycaemia
    - 4.2. Is there an indication for supplementing i.v. glutamine
      - 4.2.1. Is there an indication for supplementing oral glutamine?
    - 4.3. Is there an indication for supplementing arginine (IV or EN) alone?
    - 4.4. Is there an indication for supplementing i.v. omega-3-fatty acids?
    - 4.5. Is there an indication for specific oral/enteral formula enriched with immunonutrients?
      - 4.5.1. Pre-, peri- or postoperative timing
      - 4.5.2. Special indications
      - 4.5.3. Cost effectiveness
      - 4.5.4. Long-term outcome
      - 4.5.5. Synbiotics
    - 4.6. Which patients benefit from nutritional therapy in the preoperative period?
      - 4.6.1. Duration of preoperative nutritional therapy according to nutritional risk
      - 4.6.2. When are preoperative oral nutritional supplements and enteral nutrition indicated?
    - 4.7. When is preoperative parenteral nutrition indicated?
  - 5. Postoperative nutrition
    - 5.1. Which patients benefit from early postoperative tube feeding?
    - 5.2. Which formulae should be used?
    - 5.3. How should patients be tube fed after surgery?
    - 5.4. Which patients will benefit from EN after discharge from the hospital?
  - 6. Organ transplantation
    - 6.1. When is enteral nutrition necessary before solid organ transplantation?
    - 6.2. When is nutritional therapy indicated after solid organ transplantation?
  - 7. Bariatric surgery
    - 7.1. When is perioperative nutritional therapy indicated in the bariatric patient?
  - 8. Conclusion

Methodologie, opbouw van evidence

Very specific…

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By means of

- Literature search
- Drafts
- Delphi process

Levels of evidence.

1++	High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias
1-	Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2++	High quality systematic reviews of case control or cohort studies. High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2+	Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2-	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion

➔ recommendations from experts

➔ evidence grading

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Levels of evidence.

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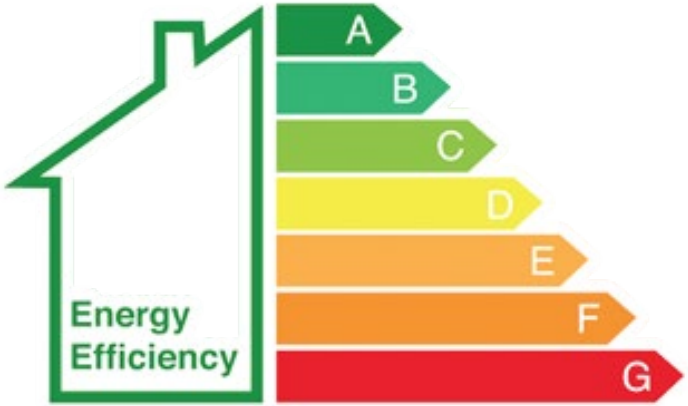
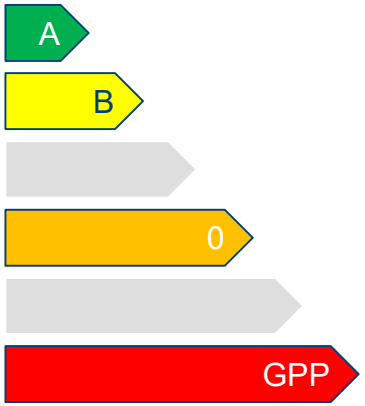
2-	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion

Grades of recommendations (SIGN).

A	1++ or 1+	At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results
B	2++ or 2+	A body of evidence including studies rated as 2++, directly applicable to the target population; or a body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results: or extrapolated evidence from studies rated as 1++ or 1+.
0	3 or 4	Evidence level 3 or 4; or extrapolated evidence from studies rated as 2++ or 2+
GPP		Good practice points. Recommended best practice based on the clinical experience of the guideline development group


A
B
C
D
E
F
G
Energy
Efficiency


A
B
0
GPP

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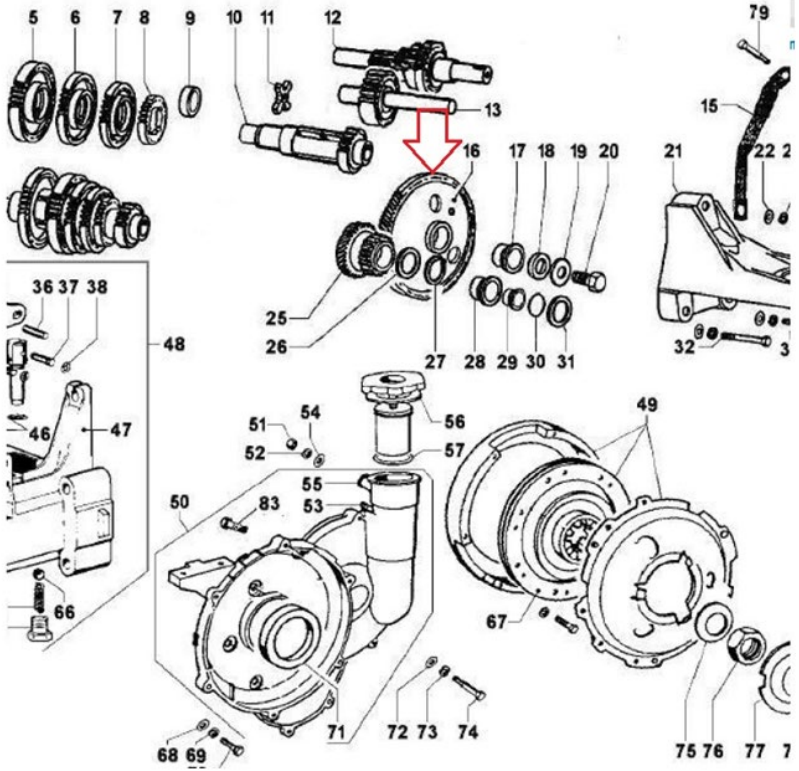
nr	topic	grade	consensus				
1	preoperative fasting	A	97	20	preop PN	A/0	100
2	CHO	A/B		21	timing TF	A/GPP	97
3	postop interruption	A	90	22	which TF	GPP	94
4	adaptation oral intake	GPP	100	23	route TF	B	95
5	intake postop	A	100	24	timing TF	A	91
6	assessment	GPP	100	25	start TF	GPP	85
7	indications of NT	GPP	92	26	how TF long term	GPP	94
8	intake < 50% in 7 days	GPP	100	27	how long TF	GPP	97
9	PN	B	100	28	Tx preop	GPP	100
10	SOP	GPP	100	29	Tx waiting list	GPP	100
11	iv glutamine	B	76	30	Tx type recommendation	GPP	100
12	PN+Ω3FA	B	65	31	Tx start nutrition solid	GPP	100
13	postop immunonutrients	B/0	89	32	Tx start nutrition intestine	GPP	93
14	preop NT	A/0	95	33	Tx combination NT	GPP	100
15	preop route oral/enteral	A	100	34	Bariatric start NT	0	100
16	oral supplements	GPP	86	35	Bariatric PN	0	100
17	malnourished cancer	A	97	36	Bariatric complications	0	87
18	preop oral immunomodul	0/GPP	64		Bariatric -		
19	timing preop	GPP	91	37	recommendations	0	94

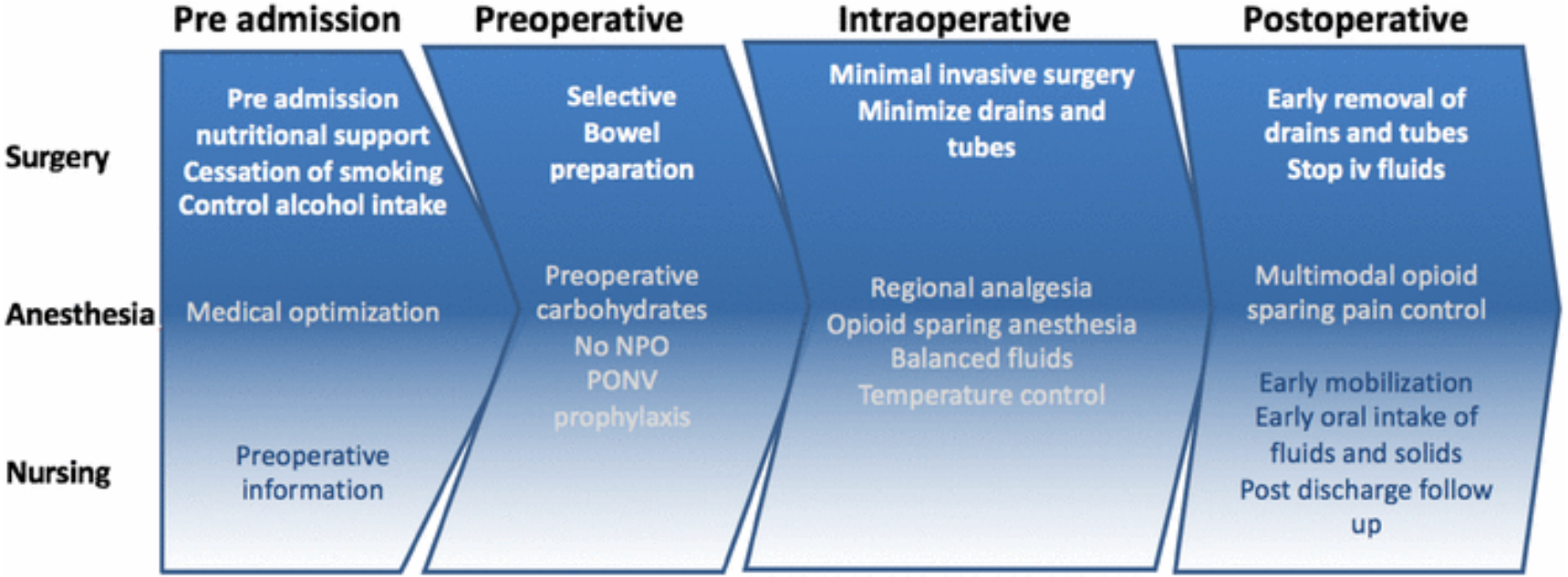
Voedingsplan ← Som van de delen





ERAS

ERAS multimodal care pathway



Ljungqvist, O. & Hubner, M. Aging Clin Exp Res (2018) 30: 249.

Nutritie & Longresecties

European Journal of Cardio-Thoracic Surgery 55 (2019) 91–115
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GUIDELINES

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Guidelines for enhanced recovery after lung surgery: recommendations of the Enhanced Recovery After Surgery (ERAS®) Society and the European Society of Thoracic Surgeons (ESTS)

Timothy J.P. Batchelor[a,*], Neil J. Rasburn[b], Etienne Abdelnour-Berchtold[c], Alessandro Brunelli[d], Robert J. Cerfolio[e], Michel Gonzalez[c], Olle Ljungqvist[f], René H. Petersen[g], Wanda M. Popescu[h], Peter D. Slinger[i] and Babu Naidu[j]

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Table 1: Guidelines for enhanced recovery after lung surgery: recommendations of the ERAS Society and the ESTS

Recommendations	Evidence level	Recommendation grade
Preoperative phase		
Preadmission information, education and counselling		
Patients should routinely receive dedicated preoperative counselling	Low	Strong
Perioperative nutrition		
Patients should be screened preoperatively for nutritional status and weight loss	High	Strong
Oral nutritional supplements should be given to malnourished patients	Moderate	Strong
Immune-enhancing nutrition may have a role in the malnourished patient postoperatively	Low	Weak
Smoking cessation		
Smoking should be stopped at least 4 weeks before surgery	High	Strong
Alcohol dependency management		
Alcohol consumption (in alcohol abusers) should be avoided for at least 4 weeks before surgery	Moderate	Strong
Anaemia management		
Anaemia should be identified, investigated and corrected preoperatively	High	Strong
Pulmonary rehabilitation and prehabilitation		
Prehabilitation should be considered for patients with borderline lung function or exercise capacity	Low	Strong
Admission		
Preoperative fasting and carbohydrate treatment		
Clear fluids should be allowed up until 2 h before the induction of anaesthesia and solids until 6 h before induction of anaesthesia	High	Strong
Oral carbohydrate loading reduces postoperative insulin resistance and should be used routinely	Low	Strong
Preanaesthetic medication		
Routine administration of sedatives to reduce anxiety preoperatively should be avoided	Moderate	Strong
Perioperative phase		
Venous thromboembolism prophylaxis		
Patients undergoing major lung resection should be treated with pharmacological and mechanical VTE prophylaxis	Moderate	Strong
Patients at high risk of VTE may be considered for extended prophylaxis with LMWH for up to 4 weeks	Low	Weak
Antibiotic prophylaxis and skin preparation		
Routine intravenous antibiotics should be administered within 60 min of, but prior to, the skin incision	High	Strong
Hair clipping is recommended if hair removal is required	High	Strong
Chlorhexidine–alcohol is preferred to povidone-iodine solution for skin preparation	High	Strong
Preventing intraoperative hypothermia		
Maintenance of normothermia with convective active warming devices should be used perioperatively	High	Strong
Continuous measurement of core temperature for efficacy and compliance is recommended	High	Strong
Standard anaesthetic protocol		
Lung-protective strategies should be used during one-lung ventilation	Moderate	Strong
A combination of regional and general anaesthetic techniques should be used	Low	Strong
Short-acting volatile or intravenous anaesthetics, or their combination, are equivalent choices	Low	Strong
PONV control		
Non-pharmacological measures to decrease the baseline risk of PONV should be used in all patients	High	Strong
A multimodal pharmacological approach for PONV prophylaxis is indicated in patients at moderate risk or high risk	Moderate	Strong
Regional anaesthesia and pain relief		
Regional anaesthesia is recommended with the aim of reducing postoperative opioid use. Paravertebral blockade provides equivalent analgesia to epidural anaesthesia	High	Strong
A combination of acetaminophen and NSAIDs should be administered regularly to all patients unless contraindications exist	High	Strong
Ketamine should be considered for patients with pre-existing chronic pain	Moderate	Strong
Dexamethasone may be administered to prevent PONV and reduce pain	Low	Strong
Perioperative fluid management		
Very restrictive or liberal fluid regimes should be avoided in favour of euvolemia	Moderate	Strong
Balanced crystalloids are the intravenous fluid of choice and are preferred to 0.9% saline	High	Strong
Intravenous fluids should be discontinued as soon as possible and replaced with oral fluids and diet	Moderate	Strong
Atrial fibrillation prevention		
Patients taking β-blockers preoperatively should continue to take them in the postoperative period	High	Strong
Magnesium supplementation may be considered in magnesium deplete patients	Low	Weak
It is reasonable to administer diltiazem preoperatively or amiodarone postoperatively for patients at risk	Moderate	Weak
Surgical technique: thoracotomy		
If a thoracotomy is required, a muscle-sparing technique should be performed	Moderate	Strong
Intercostal muscle- and nerve-sparing techniques are recommended	Moderate	Strong
Reapproximation of the ribs during thoracotomy closure should spare the inferior intercostal nerve	Moderate	Strong
Surgical technique: minimally invasive surgery		
A VATS approach for lung resection is recommended for early-stage lung cancer	High	Strong
Postoperative phase		
Chest drain management		
The routine application of external suction should be avoided	Low	Strong
Digital drainage systems reduce variability in decision-making and should be used	Low	Strong
Chest tubes should be removed even if the daily serous effusion is of high volume (up to 450 ml/24 h)	Moderate	Strong
A single tube should be used instead of 2 after anatomical lung resection	Moderate	Strong
Urinary drainage		
In patients with normal preoperative renal function, a transurethral catheter should not be routinely placed for the sole purpose of monitoring urine output	Moderate	Strong
It is reasonable to place a transurethral catheter in patients with thoracic epidural anaesthesia	Low	Strong
Early mobilization and adjuncts to physiotherapy		
Patients should be mobilized within 24 h of surgery	Low	Strong
Prophylactic minitracheostomy use may be considered in certain high-risk patients	Low	Weak

ERAS: Enhanced Recovery After Surgery; ESTS: European Society of Thoracic Surgeons; LMWH: low-molecular-weight heparin; NSAID: non-steroidal anti-inflam-

Perioperative nutrition

Patients should be screened preoperatively for nutritional status and weight loss

Oral nutritional supplements should be given to malnourished patients

Immune-enhancing nutrition may have a role in the malnourished patient postoperatively

Preoperative fasting and carbohydrate treatment

Clear fluids should be allowed up until 2 h before the induction of anaesthesia and solids until 6 h before induction of anaesthesia

Oral carbohydrate loading reduces postoperative insulin resistance and should be used routinely

Intravenous fluids should be discontinued as soon as possible and replaced with oral fluids and diet



ERAS in lung surgery

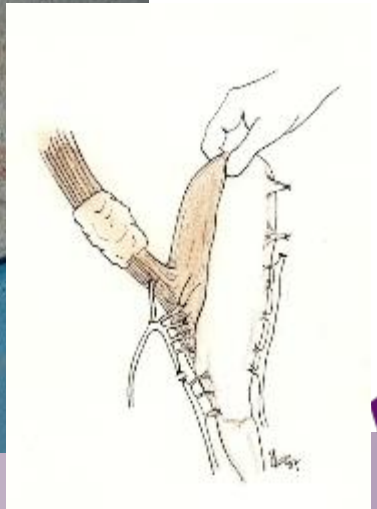
	Evidence level	Recommendation grade
Screening for nutritional status preoperatively	High	Strong
ONS for malnourished patients	Moderate	Strong
Immuno-enhanced Nutrition	Low (extrapolated)	Weak (postoperative only)
Limit preop fasting for solids and fluids	High	Strong
Carbohydrate loading	Low (extrapolated data)	Strong
Early enteral route	Moderate (extrapolated)	Strong



Nutritie & slokdarmresecties

Buismaag





Issue I: hoge GI anastomose

- Vrees voor lekkage
  - Npo, tot 8 weken…

Vs

- Geen maagsonde; orale intake binnen de 24u

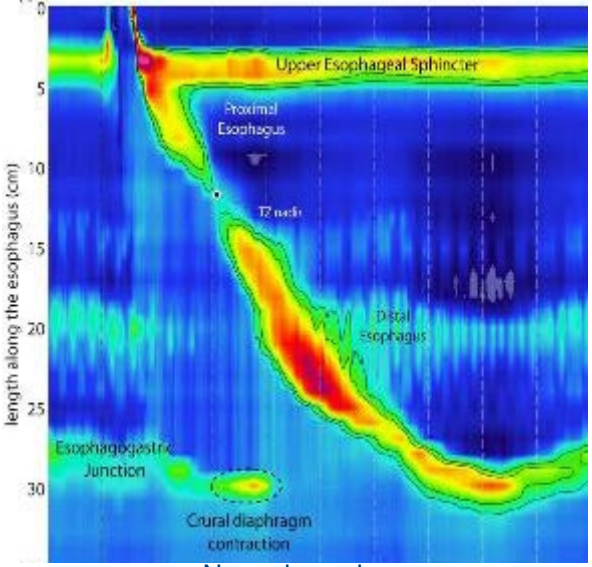


Wat is ‘orale intake’?

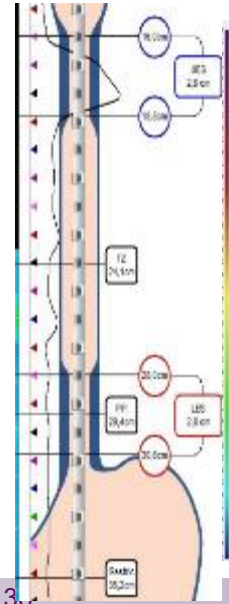


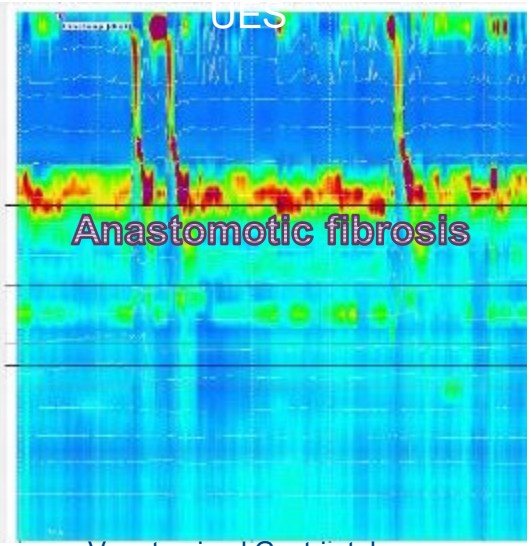
Issue II: buismaag + bilaterale vagotomie

- Gastroparese → delayed gastric emptying
- Functionele pyloor stenose → delayed gastric emptying
- Verstoring upper GI pacemaker
- Dumping syndrome (of -like symptoms)



Normal esophagus





Vagotomised Gastric tube

Praktische aspecten

Assessment & Voeding preoperatief

Preoperatieve raadpleging

- Assessment
- Voedingsadvies op basis van voedingsanamnese en klachtenanamnese
- Sociale situatie
- Informeren over verloop van postoperatieve voeding



Screening ondervoeding

NRS-2002

Nutritional Risk Screening (NRS 2002)

Table 1 Initial screening			
1	Is BMI <20.5?	Yes	No
2	Has the patient lost weight within the last 3 months?		
3	Has the patient had a reduced dietary intake in the last week?		
4	Is the patient severely ill ? (e.g. in intensive therapy)		
Yes: If the answer is 'Yes' to any question, the screening in Table 2 is performed. **No**: If the answer is 'No' to all questions, the patient is re-screened at weekly intervals. If the patient e.g. is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.			

Table 2 Final screening

Impaired nutritional status		Severity of disease (≈ increase in requirements)	
Absent **Score 0**	Normal nutritional status	Absent **Score 0**	Normal nutritional requirements
Mild **Score 1**	Wt loss >5% in 3 mths or Food intake below 50–75% of normal requirement in preceding week	Mild **Score 1**	Hip fracture* Chronic patients, in particular with acute complications: cirrhosis*, COPD*. *Chronic hemodialysis, diabetes, oncology*
Moderate **Score 2**	Wt loss >5% in 2 mths or BMI 18.5 – 20.5 + impaired general condition or Food intake 25–60% of normal requirement in preceding week	Moderate **Score 2**	Major abdominal surgery* Stroke* *Severe pneumonia, hematologic malignancy*
Severe **Score 3**	Wt loss >5% in 1 mth (>15% in 3 mths) or BMI <18.5 + impaired general condition or Food intake 0-25% of normal requirement in preceding week in preceding week.	Severe **Score 3**	Head injury* Bone marrow transplantation* *Intensive care patients (APACHE>10).*
Score:	+	**Score:**	= **Total score**
Age	if ≥70 years: add 1 to total score above	= **age-adjusted total score**	

Score ≥3: the patient is nutritionally at-risk and a nutritional care plan is initiated

Score <3: weekly rescreening of the patient. If the patient e.g. is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.



Preoperatief advies

- **NRS 2002 + bepaling energiebehoefte (target)**
  - Henry (Oxford equations) @ PAL 1,4; IBW
- Oraal: energie- en eiwitrijk advies, medische bijvoeding
- Enteraal: individueel schema

  Energiebehoefte – orale voedingsinname

  Comfort patiënt – thuissituatie
- Parenteraal:

  Contra-indicatie enteraal voeden

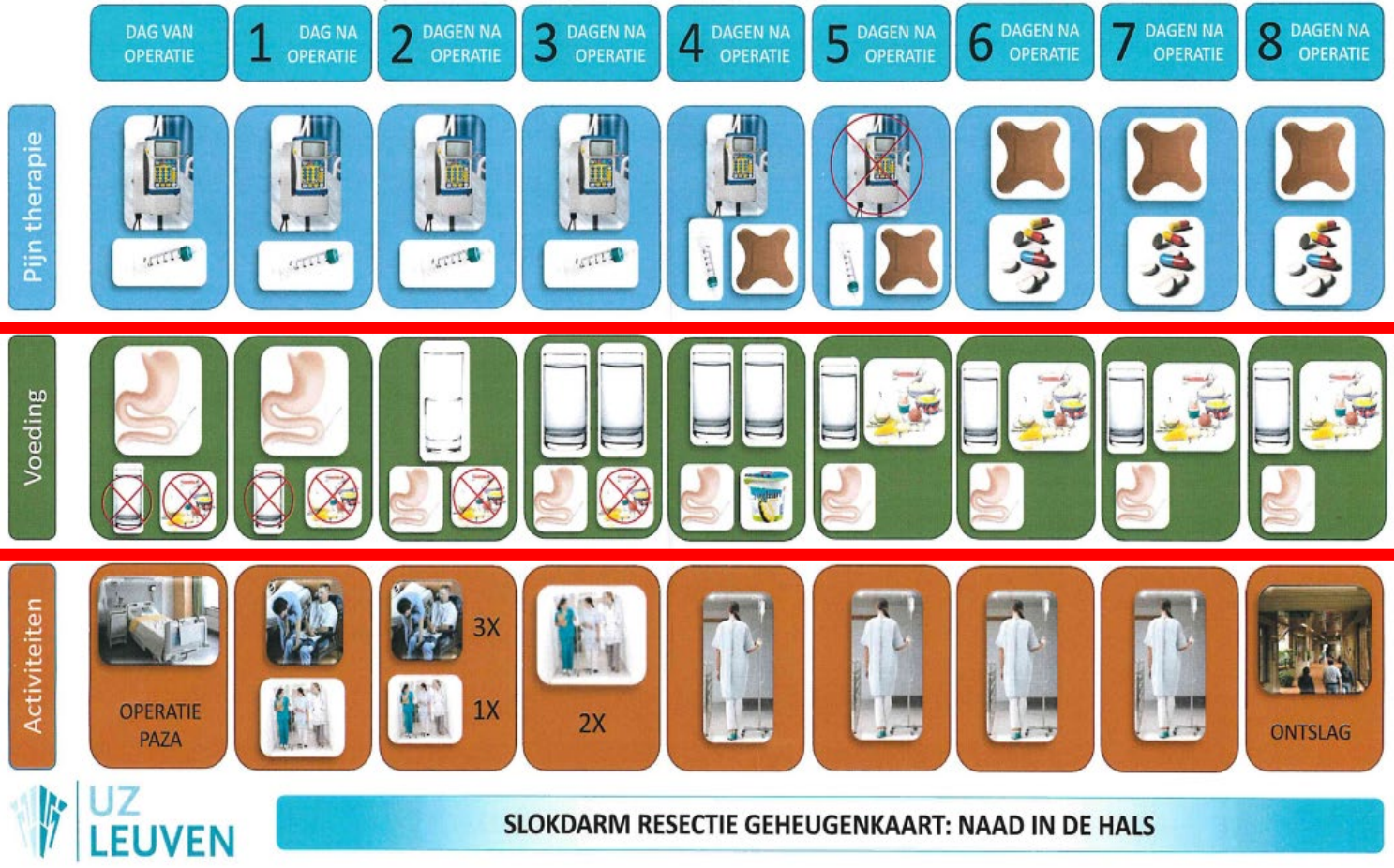
  Ontoereikende orale-enterale voeding (<50%, >7d)

Iedereen preoperatieve voedingsondersteuning?

- Ernstige ondervoeding
  - Gewichtsverlies >10-15% op 6mnd
  - BMI < 18,5 kg/m²
  - NRS > 5
  - Serumalbumine < 30g/L

- Voedingsproblemen met sterk verminderde voedingsinname

Voeding peri-operatief


DAG VAN OPERATIE
1 DAG NA OPERATIE
2 DAGEN NA OPERATIE
3 DAGEN NA OPERATIE
4 DAGEN NA OPERATIE
5 DAGEN NA OPERATIE
6 DAGEN NA OPERATIE
7 DAGEN NA OPERATIE
8 DAGEN NA OPERATIE
Pijn therapie
Voeding
Activiteiten
OPERATIE PAZA
3X
1X
2X
ONTSLAG
UZ LEUVEN
SLOKDARM RESECTIE GEHEUGENKAART: NAAD IN DE HALS

Enterale voeding

- Vroege start postoperatieve enterale voeding bij:
  - slechte voedingstoestand
  - NPO > 5d na chirurgie
  - verwachte orale voedingsintake < 50% tijdens min. 7dagen
  - risicogroepen: hoofd-halschirurgie of gastro-intestinale chirurgie (oncologisch), ernstig trauma bvb. hersentrauma, preoperatieve malnutritie

Enterale voedingsondersteuning



- Ondersteuning → geen full calorische dekking
- Sondevoeding = standaard formule
- Start SV < 24h na chirurgie

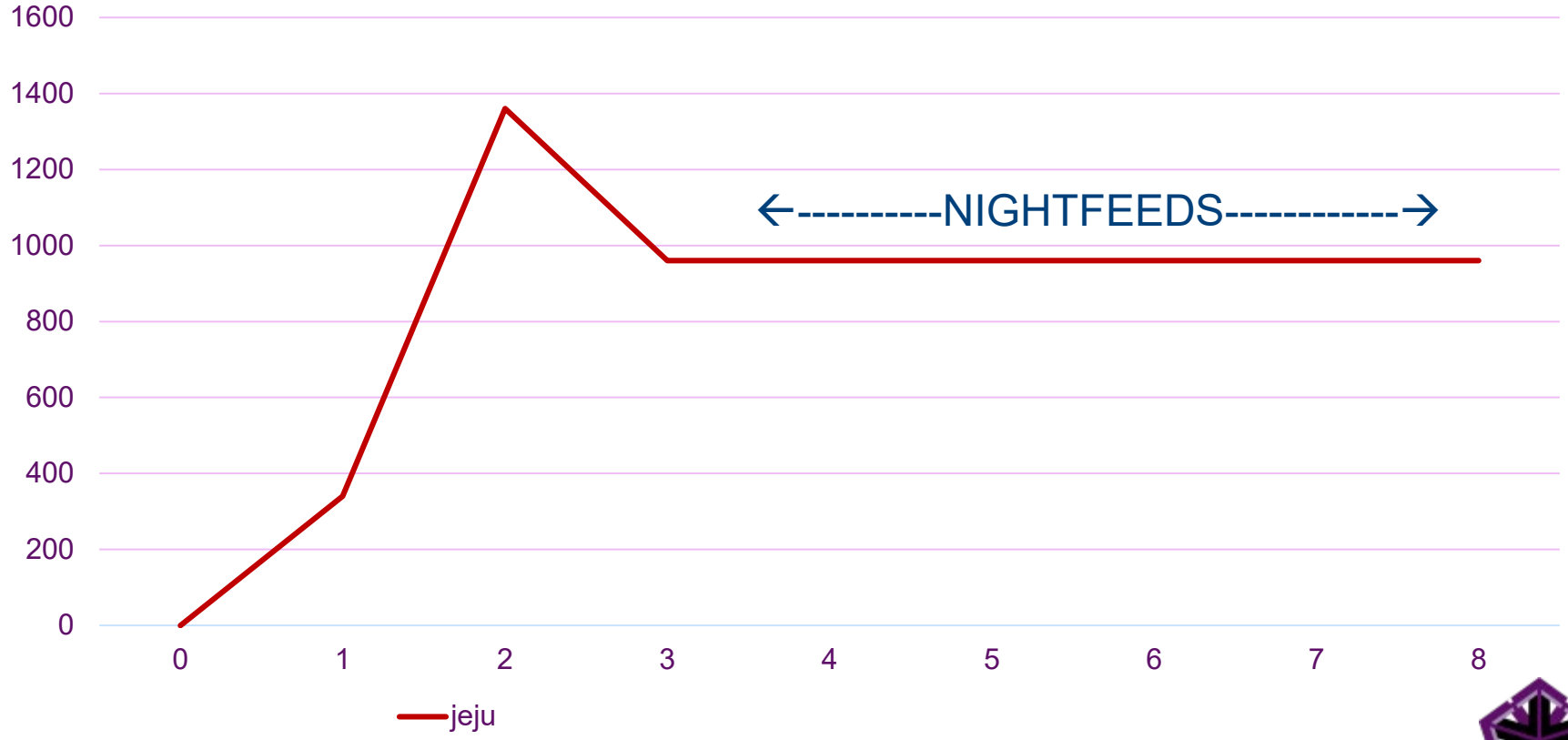
- Opbouwschema SV: start aan max 20ml/u + individuele opbouw afh. van tolerantie (3-7d)

- Enkel TPN wanneer < 50% energiebehoefte > 7d wordt bereikt met combinatie orale en enterale voeding of contra-indicaties voor ent/oraal
  - vb. darmfistel, ileus, chyllek

Opdrijfschema sondevoeding

Postop dag	start	stop	# uur	aan debiet (ml/u)	toegediend volume (ml)	energetic value (kCal)	cum energ (kCal)	cum eiwit (g)
0		*Recovery Unit*		*Water; 20*		*0*	*0*	*0*
1	12	20	8	20	160	160	160	6,24
1	20	8	12	40	480	480	640	24,96
2	8	20	12	60	720	720	1360	53,04
2	20	8	12	80	960	960	2320	90,48
NF 3	20	8	12	80	960	960	3280	127,92
NF 4	20	8	12	80	960	960	4240	165,36
NF 5	20	8	12	80	960	960	5200	202,8
NF 6	20	8	12	80	960	960	6160	240,24
NF 7	20	8	12	80	960	960	7120	277,68
					7120	7120		

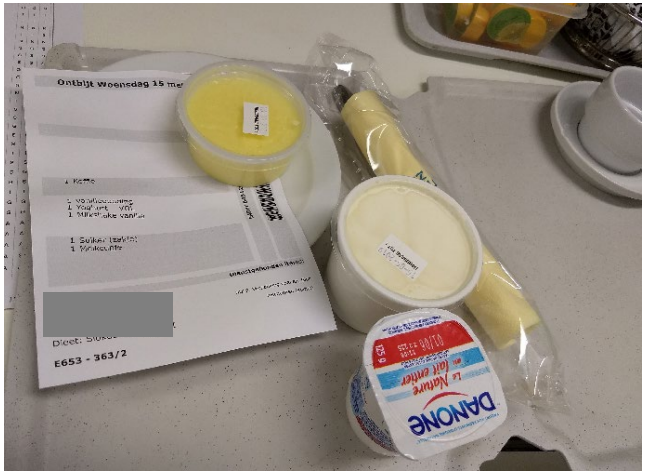
Energie intake sondevoeding

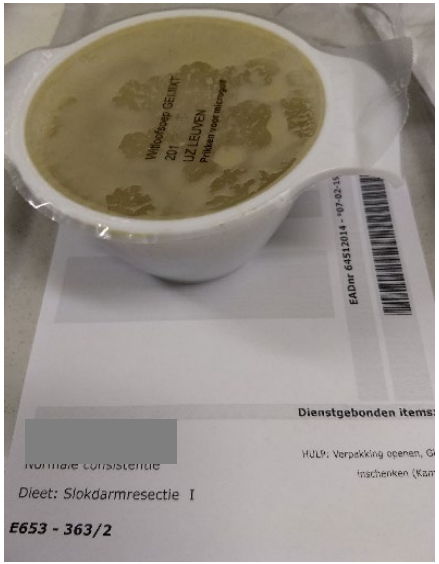


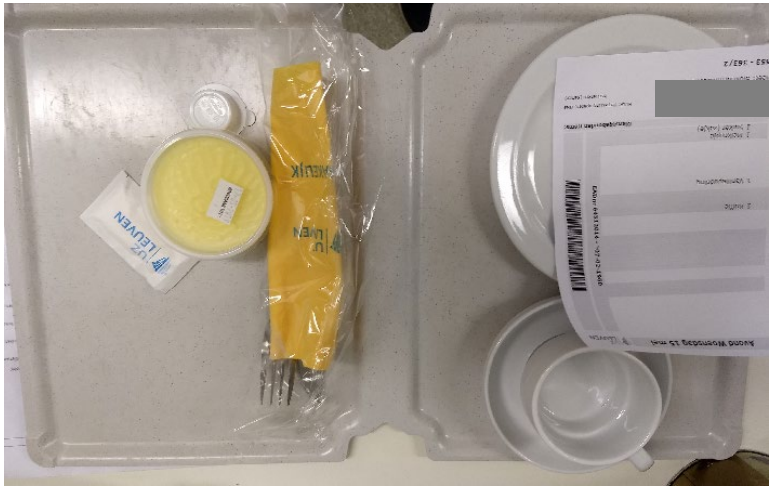
ERAS slokdarmresectie: oraal (halsnaad)

- POD 0: npo *(oka; recovery)*
- POD 1: npo *(recovery; 11 a.m.: reguliere afdeling)*
- POD 2: NGT stopje; sips; 1 glas H2O
- POD 3: NGT uit; 3 glazen H2O
- POD 4: start orale intake – “fase 1”

Slokdarmresectie fase 1 – theorie

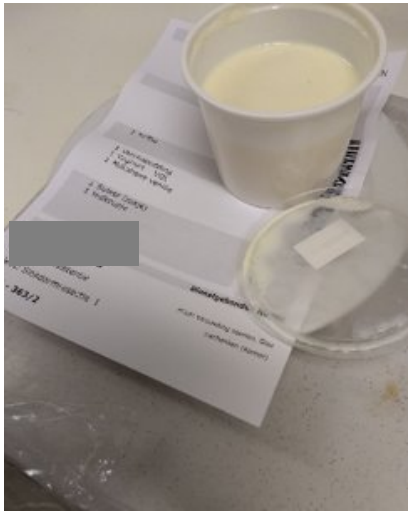


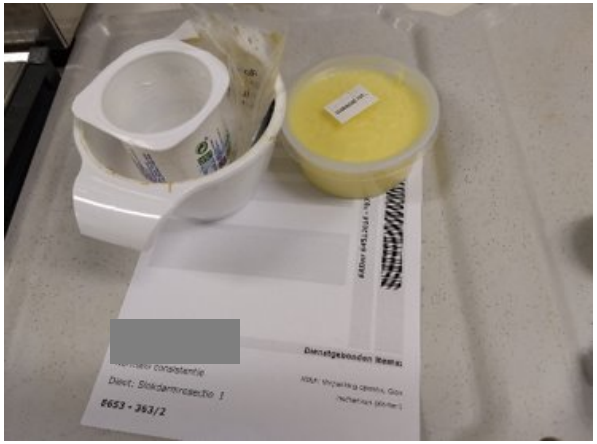


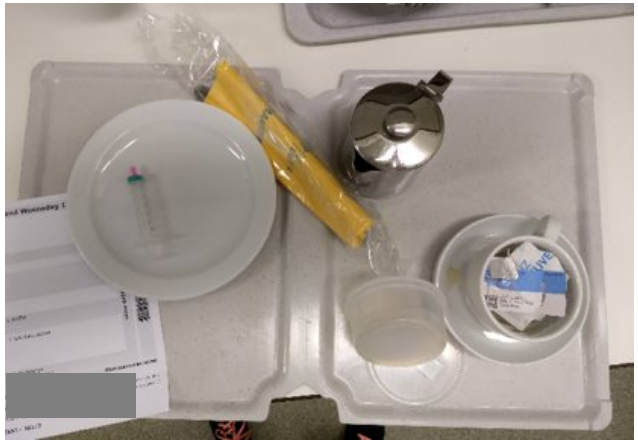


679 kcal
17.3 g eiwitten

Slokdarmresectie fase 1 – real life







347 kcal (679 kcal)
10.2 g eiwitten (17.3 g eiwitten)

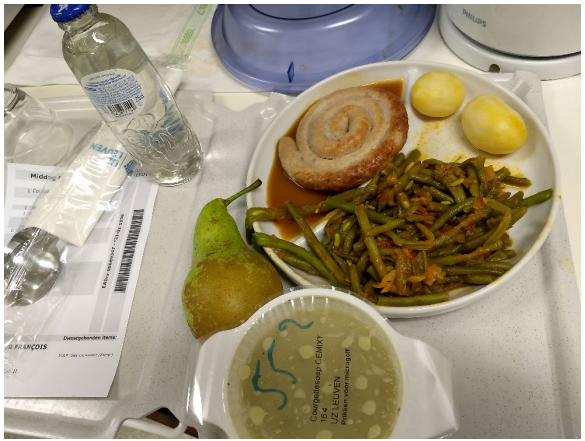
ERAS slokdarmresectie: oraal (halsnaad)

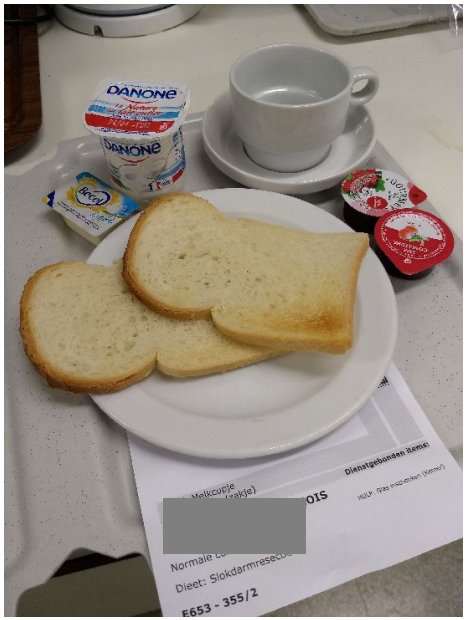
- POD 0: npo *(oka; recovery)*
- POD 1: npo *(recovery; 11 a.m.: reguliere afdeling)*
- POD 2: NGT stopje; sips; 1 glas H2O
- POD 3: NGT uit; 3 glazen H2O
- POD 4: start orale intake – “fase 1”
- POD 5: opdrijven orale intake – “fase 2”



Slokdarmresectie fase 2 - theorie

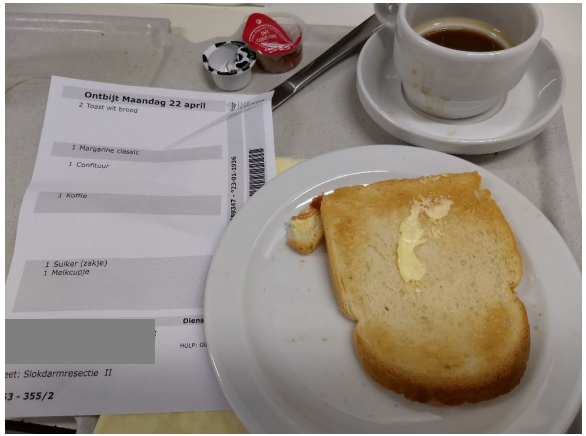


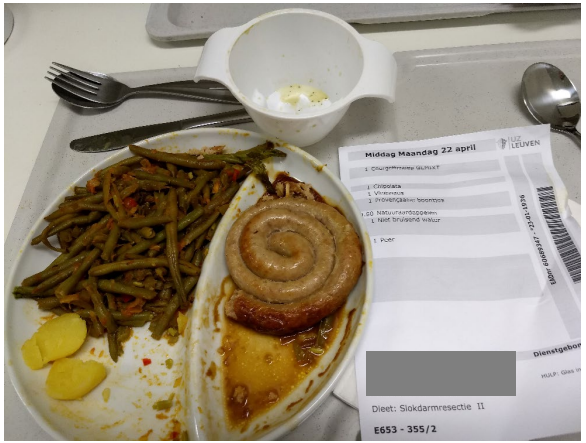


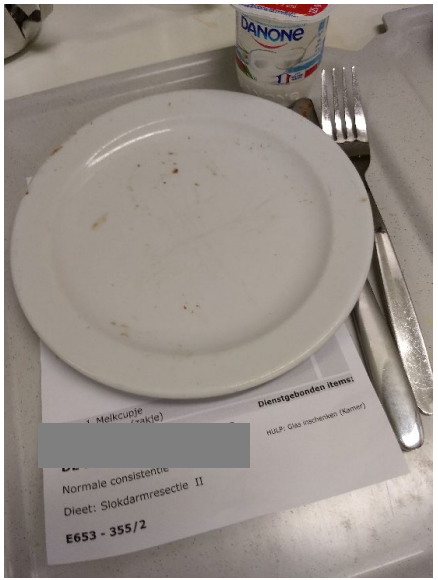


1310 kcal
49.2 g eiwitten

Slokdarmresectie fase 2 – real life







654 kcal (1310 kcal)
12.7 g eiwitten (49.2 g eiwitten)

- Energiebehoefte: Henry (Oxford equations) @ PAL 1,4; IBW
- Eiwitbehoefte: 1,0-1,5 g eiwit/kg ILG/dag

voorbeeld man 70 kg

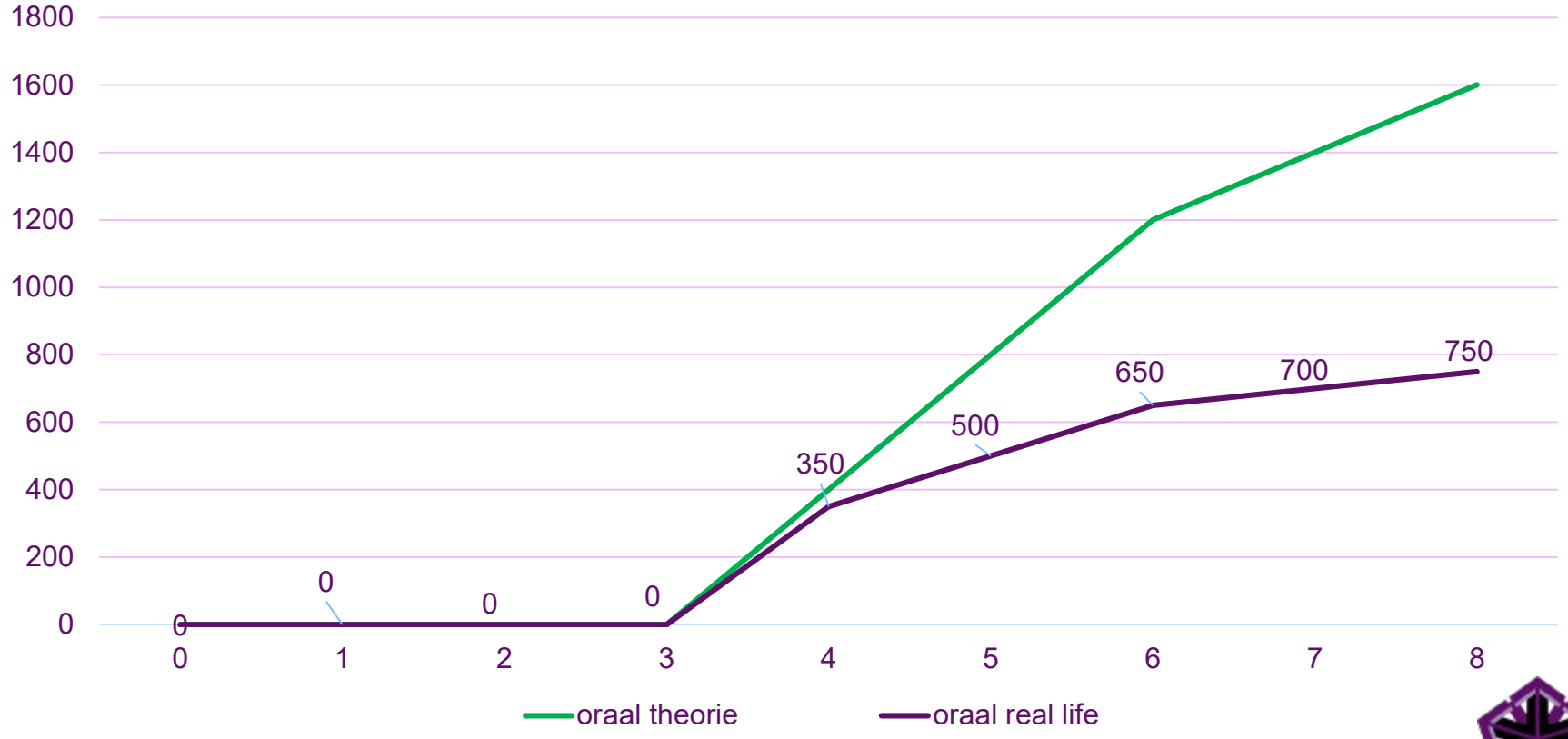
Energiebehoefte: 2068 kcal/dag

Eiwitbehoefte: 70 – 105 g eiwit/dag

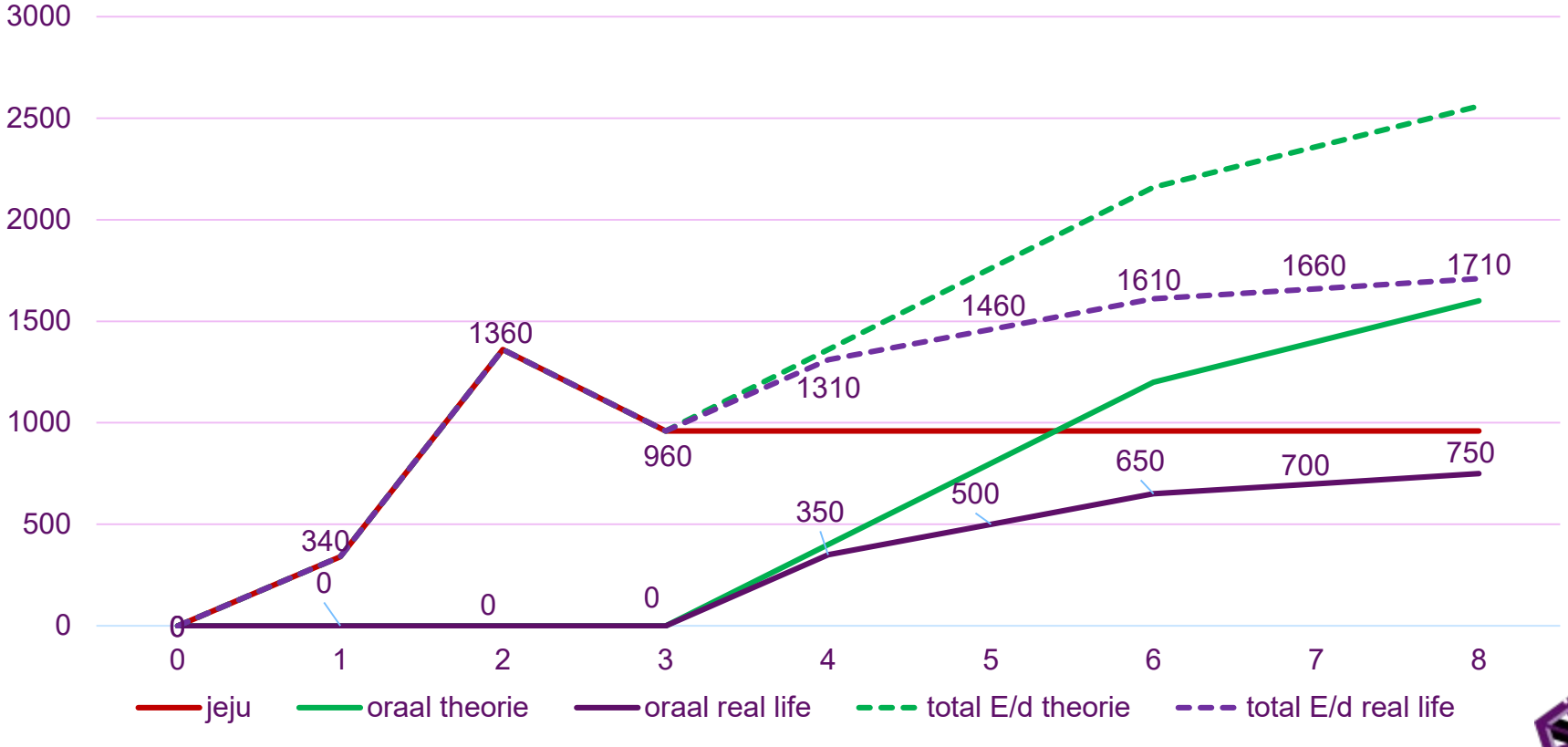
Dieet	Energie aanbreng theorie (kcal/dag)	Energie aanbreng real life (kcal/dag)	Eiwit aanbreng theorie (g/dag)	Eiwit aanbreng real life (g/dag)
‘Fase 1’	679	337	17.3	10,2
‘Fase 1’ + nachtelijke SV	1679	1337	56.3	49,2
‘Fase 2’	1310	654	49.2	12,7
‘Fase 2’ + nachtelijke SV	2310	1654	88.2	51,7

Basale Energiebehoefte: 1750 – 2100 kcal/dag
Basale Eiwitbehoefte: 70 – 105 g eiwit/dag

Energie intake oraal



Energie intake per dag



Voeding postoperatief

Ontslag

- Voedingsadviezen na slokdarmchirurgie
- Opbouwen en uitbreiden van orale intake
- 1L isocalorische nachtelijke sondevoeding → ondersteuning
- Met voedingspomp
- (Met /) zonder vezels
- Debiet afhankelijk van tolerantie (80-120 ml/u)
- Afbouw SV: hoeveelheid of frequentie

→ Wanneer stoppen?

minimum *80% van energiebehoefte via orale weg*

How are we doing ourselves?

nr	topic	grade	implement
1	preoperative fasting	A	☑☒
2	CHO	A/B	☑
3	postop interruption	A	☑
4	adaptation oral intake	GPP	☑
5	intake postop	A	☑☒
6	assessment	GPP	☑
7	indications of NT	GPP	☑
8	intake < 50% in 7 days	GPP	☑
9	PN	B	☑
10	SOP	GPP	☑
11	iv glutamine	B	☒
12	PN+Ω3FA	B	☒
13	postop immunonutrients	B/0	☒
14	preop NT	A/0	☑☒
15	preop route oral/enteral	A	☑
16	oral supplements	GPP	☑☒
17	malnourished cancer	A	☑
18	preop oral immunomodul	0/GPP	☒
19	timing preop	GPP	☒
20	preop PN	A/0	☑
21	timing TF	A/GPP	☑
22	which TF	GPP	☑
23	route TF	B	☑
24	timing TF	A	☑
25	start TF	GPP	☑
26	how TF long term	GPP	☑
27	how long TF	GPP	☑
28	~~Tx preop~~	~~GPP~~	
29	~~Tx waiting list~~	~~GPP~~	
30	~~Tx type recommendation~~	~~GPP~~	
31	~~Tx start nutrition solid~~	~~GPP~~	
32	~~Tx start nutrition intestine~~	~~GPP~~	
33	~~Tx combination NT~~	~~GPP~~	
34	~~Bariatrric start NT~~	~~0~~	
35	~~Bariatric PN~~	~~0~~	
36	~~Bariatric complications~~	~~0~~	
	~~Bariatric recommendations~~		
37		~~0~~	



Besluit

Take home messages

- Ofschoon toenemende evidence in bepaalde sub-items,
- Guidelines = veelal expert opinions

- Screening & assessment = start
- Voeding als ‘medicijn’ → opname in medicatieplan

- Assessment is de start, dan is implementatie van voedingsstrategie teamwerk! (dietist, chirurg, vpk, ane)



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