

Le rapport calorico-azoté a-t-il un intérêt?

Lille, 2010

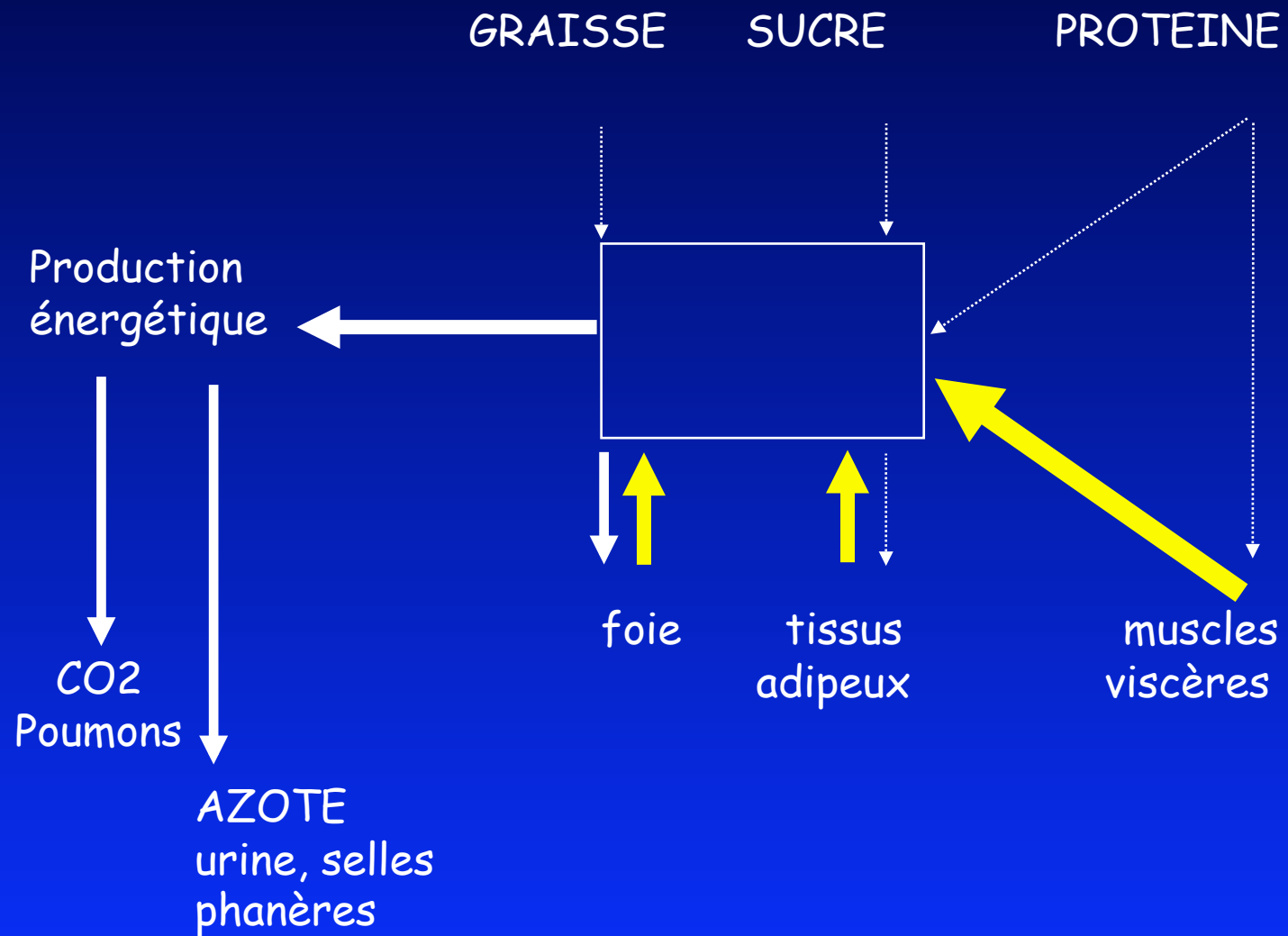
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MESSAGES

1. Besoins et pertes: -> cibles caloriques et protéique
2. Couverture simultanée des besoins caloriques et protéiques: critique!
3. Excès/manque de protéine et/ ou d'énergie: inutile et malsain!

STRESS



Nutrition

GH, IGF-1
Hormones sexuelles
insuline, T3

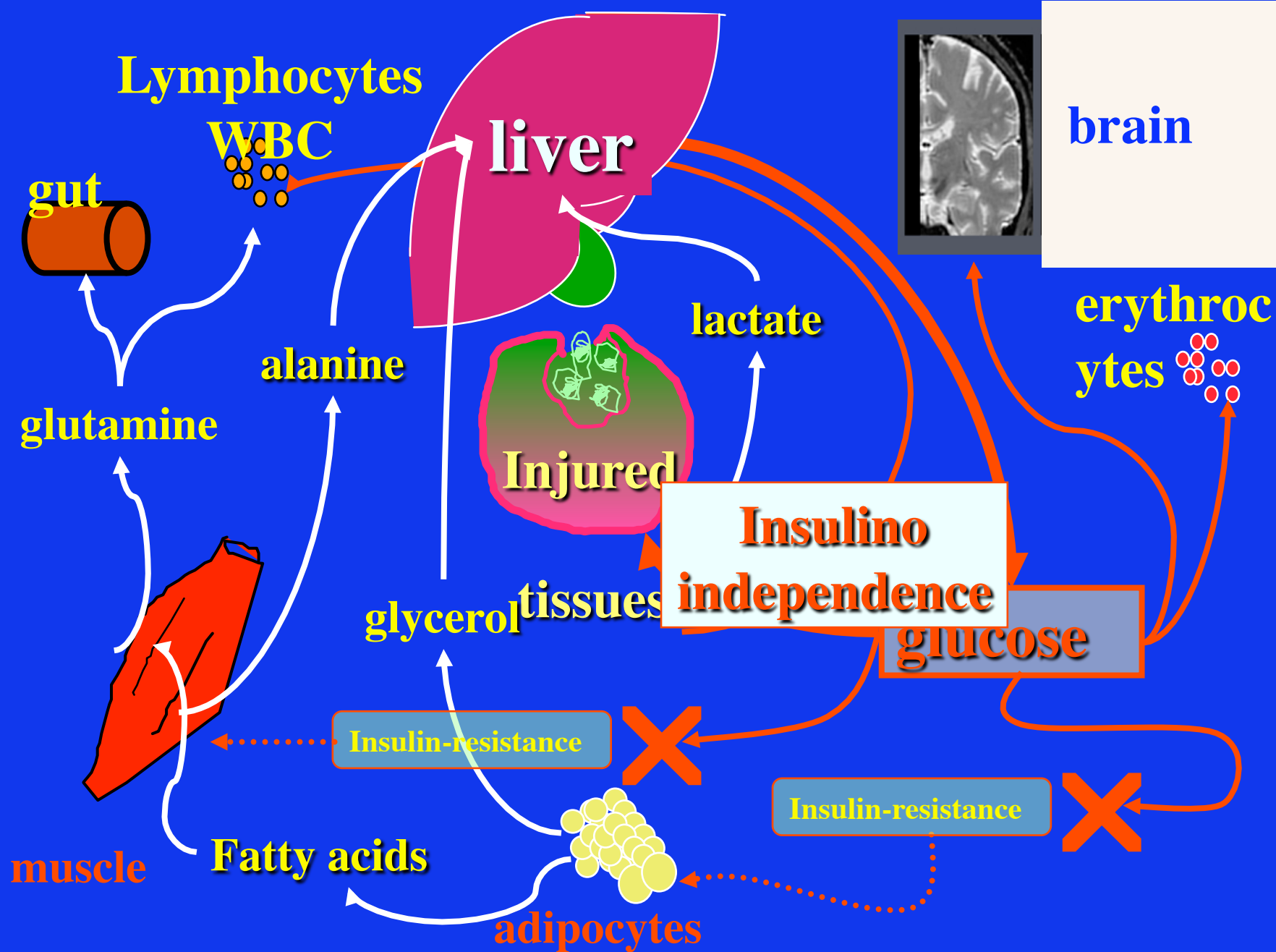
Oxigène
H₂O

Activité
physique

Anabolisme - catabolisme

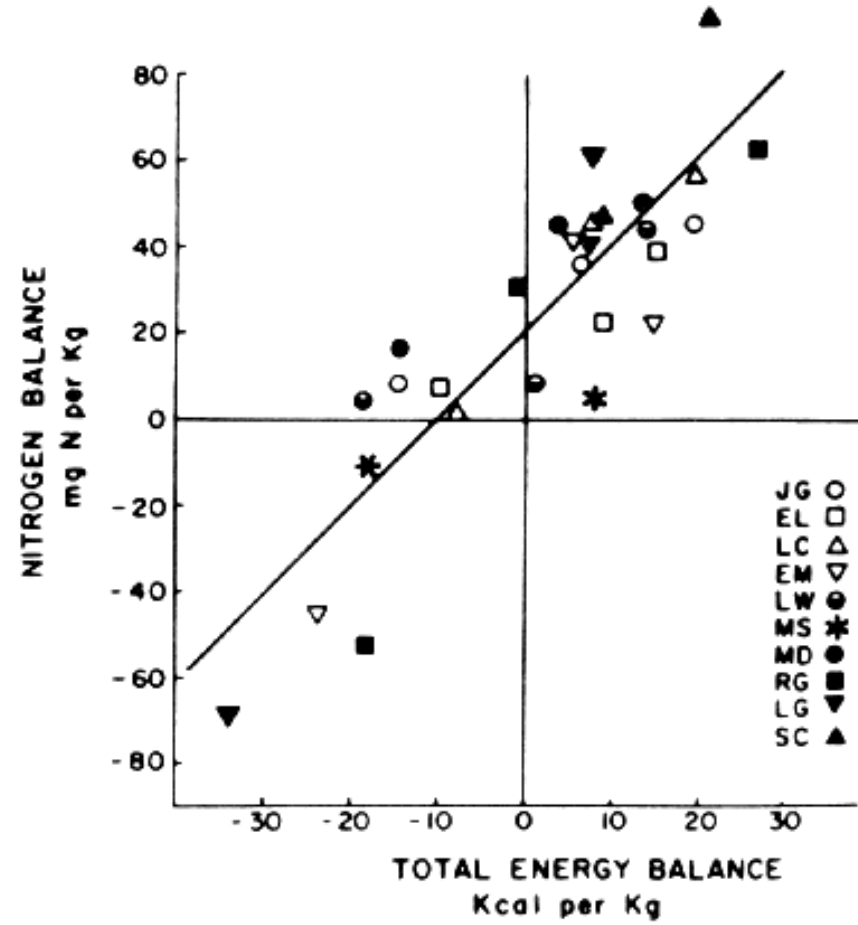
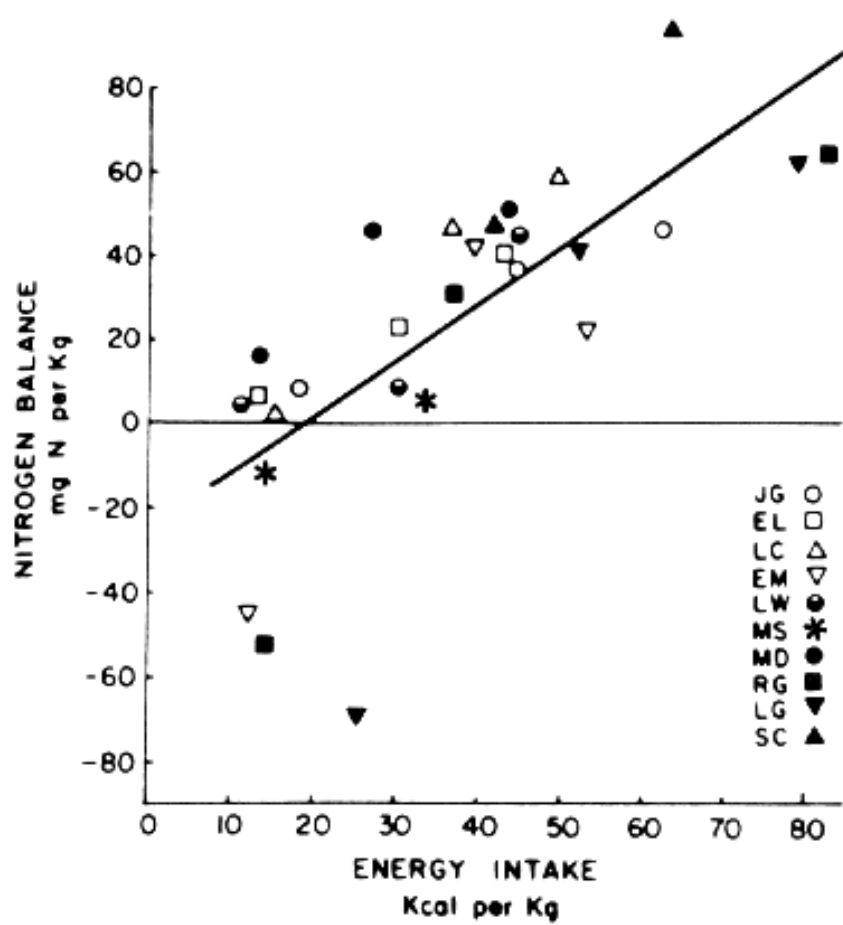
MASSE MUSCULAIRE

METABOLIC ADAPTATION TO STRESS



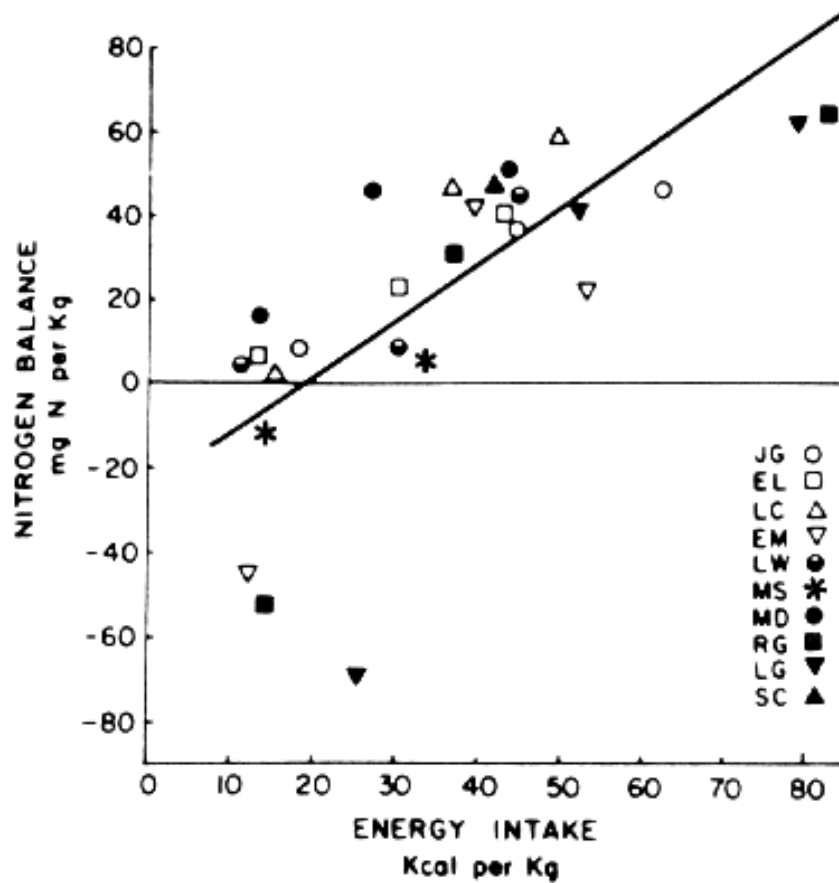
Changes in nitrogen balance of depleted patients with increasing infusions of glucose

Elwyn DH et al. Am J Clin Nutr 1979



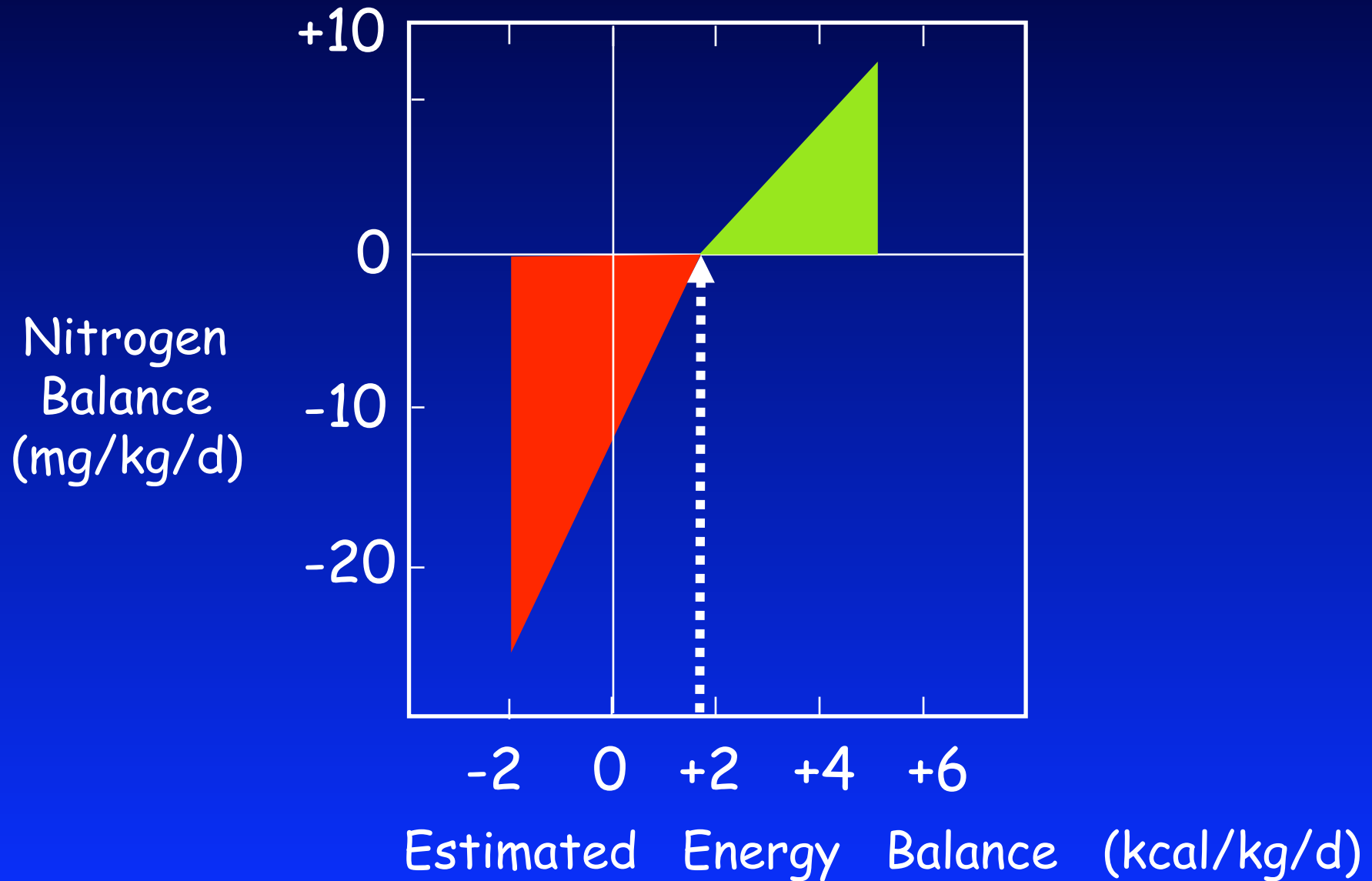
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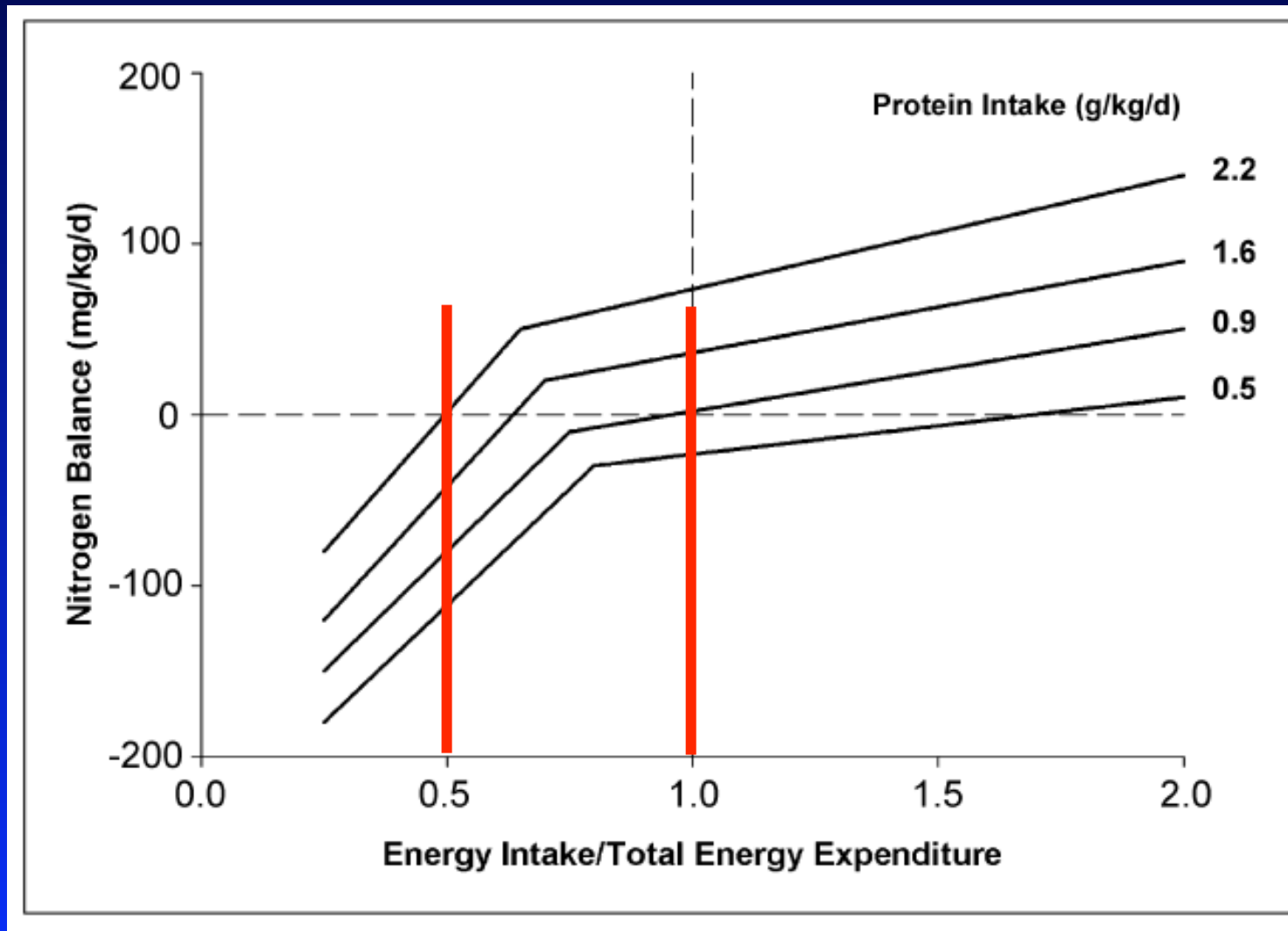
Protein Utilization Depends on Energy Availability

Rombeau J.L. In *Clinical Nutrition. Enteral & Tube Feeding*. 1990



The influence of caloric and protein intake upon nitrogen balance

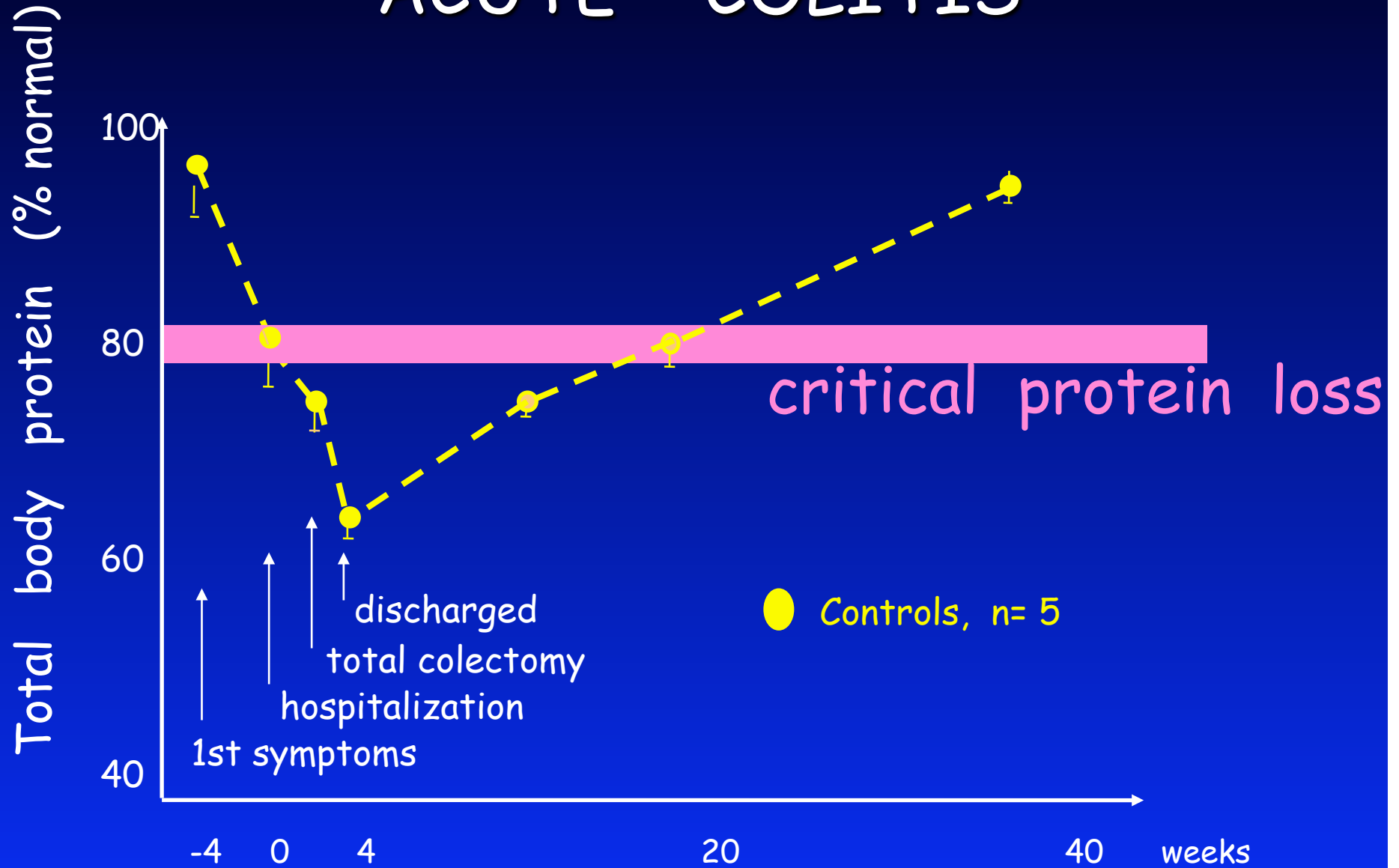
Elwyn DH et al. Crit Care Med 1980; 9:9-20



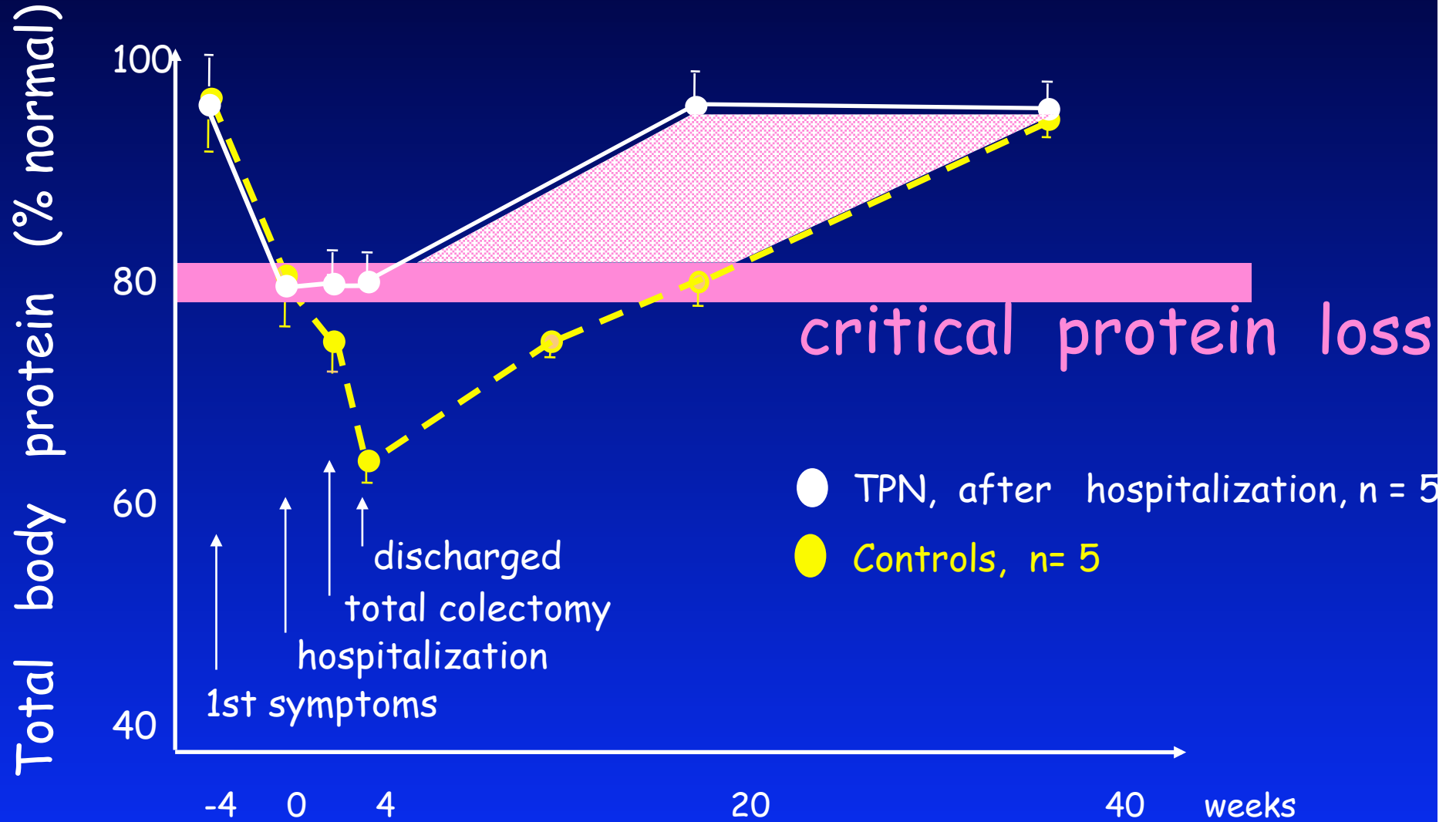
Déficit énergétique ->
catabolisme protéique accru



ACUTE COLITIS



ACUTE COLITIS



ICU :

Energy is critical !

Weight loss
(%) (%)

Protein loss *

5 11.2 - 16.8

10 15.2 - 20.8

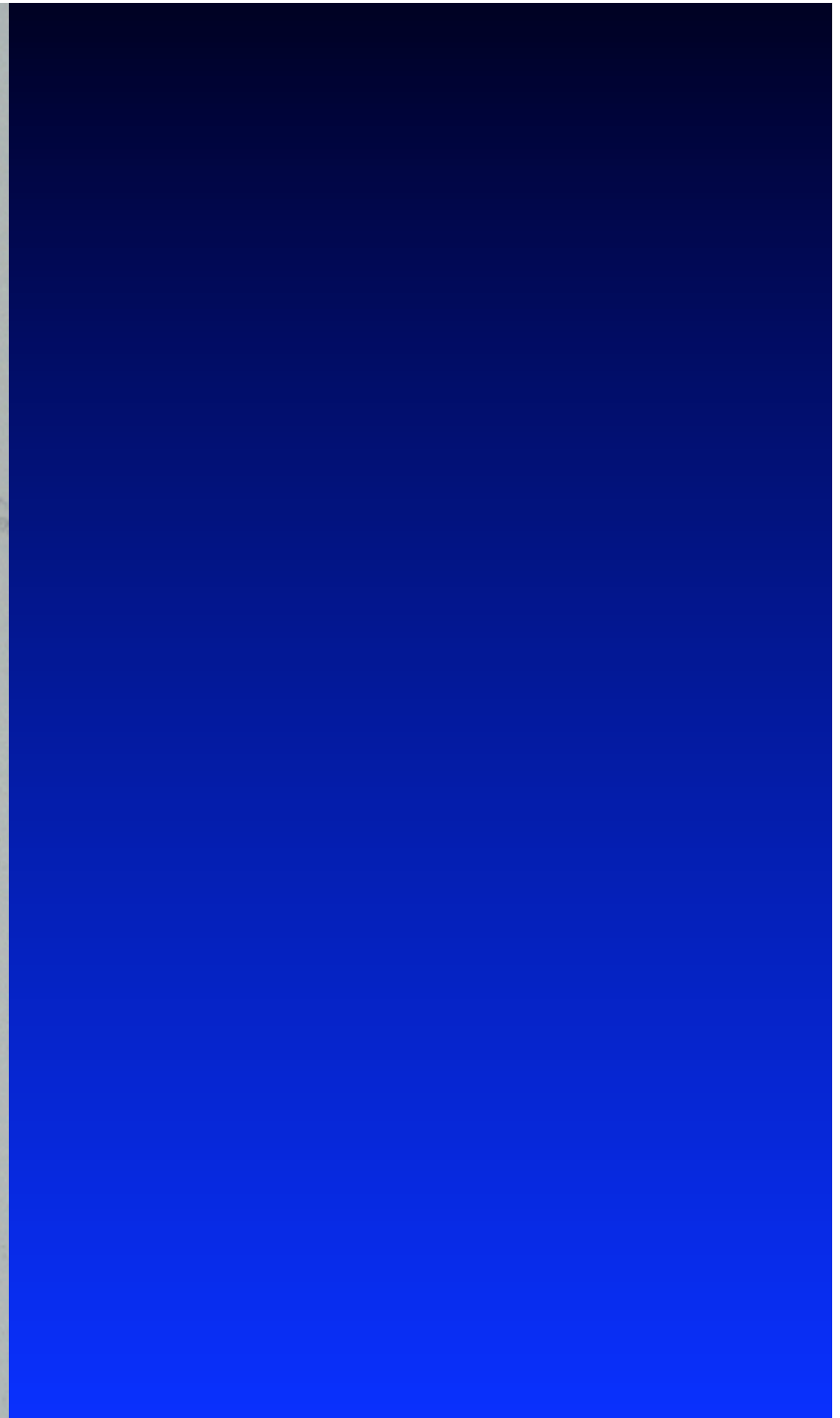
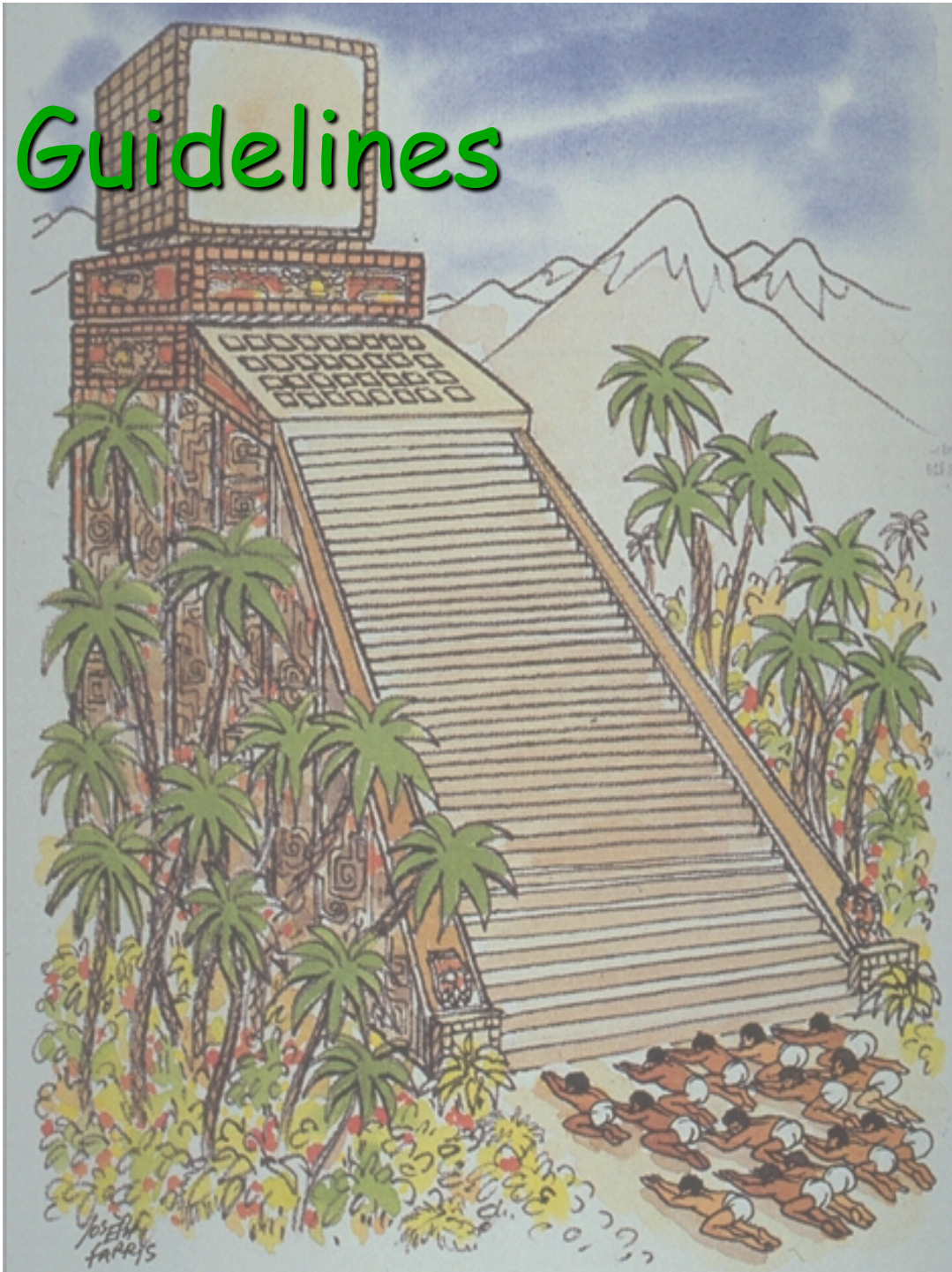
15 19.2 - 24.8

20 23.0 - 29.0

25 26.8 - 33.2

* in vivo neutron analysis. Hill G.L. J Parent Enteral Nutr 16, 197-218, 1992

Guidelines



ESPEN Guidelines 2009

kcal/N

Geriatrics

Sobotka L. et al. Clin Nutr 28 (2009) 461-466
83-188

-> 1.0-1.2 g (< 1.5) protein/kg/d & 20-30 kcal/k/d

Ref: Wolfe RR et al. Clin Nutr 2008;27:675-84.
Alix E et al. JAGS 2007;55:1085-9.

ICU

Singer P. Clin Nutr 28 (2009) 387-400 **104-120**

-> 25 kcal/kg/d & 1.3-1.5 g/kg ideal body weight/d

Ref: Larsson J et al. Ann Surg 1987;205:288-94

Surgery

Braga M. Clin Nutr 28 (2009) 378-386 **104-125**

-> 25 -30 kcal/kg/d & 1.5 g/kg ideal body weight/d

Ref: Ishibashi N et al. Crit Care Med 1998;26:1529-35.
Scheinkestel CD et al. Nutrition 2003;19:909-16.
Wolfe R et al. Ann Surg 1983;197:163-71.

HPN

Staun M. Clin Nutr 28 (2009) 467-479 **100-150**

-> 100-150 kcal g/nitrogen & 0.8-1.0 g protein/kg/d.

Réf: -



Conclusion

Besoins

Énergie: selon évaluation

Protéine: besoins de base + pertes

(! Évolution !)

Quels besoins nutritionnels chez le patient hospitalisé

C. Chambrier. Questions de nutrition clinique de l'adulte. SFNEP, 2006

« Le rapport calorico-azoté n'a aucun intérêt pour déterminer les besoins nutritionnels d'un patient »

Merci





Energy supply level correlates with ICU mortality :

A multicentre study in 1209 patients

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⁵Baxter GmbH, Medical Affairs, Munich, Germany

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HYPOTHESIS

„early“ nutrition

(> 1500 kcal within the first 3 days)

is associated with a better clinical outcome (reduced mortality and morbidity) than

„late“ nutrition

(< 1500 kcal within the first 3 days).

METHOD

- Recruitment : 3548 patients (ICU cost analysis study)
14 ICUs of 9 German University Hospitals
- Extraction : 1209 ICU patients with
 - LOS > 4 d.
 - enteral or parenteral nutrition, and/or iv energy
- Stratification
 - > 1500 kcal / 3 first d. = « early »
 - < 1500 kcal / 3 first d. = « late »

RESULTS (NPG)

		Early N = 374	Late N = 835	p value
Age	(x± SD)	59.3 ± 17.2	61.2 ± 17.5	0.07
gender	(m/f)	235/139	525/307	0.2
mortality ICU	(%)	50 (13.4%)	155 (18.6)	0.026
mortality hospital	(%)	70 (18.7%)	202 (24.2%)	0.035
LOS ICU	x±SD (median)	13.8±12.5 (9.1)	13.3±11.4 (9)	0.49
LOS hospital	x±SD (median)	33.4±34.0 (25)	32.2±26.7 (26)	0.52
sepsis	n (%)	92 (24.6%)	250 (29.9%)	0.056
acute kidney failure	n (%)	38 (10%)	120 (14.4%)	0.044
mechanical ventilation	(x± SD)	10.3 ± 10.5 (7)	9.5 ± 10.0 (6)	0.22
NPG kcal/days 1-3	(x± SD)	2732±1136	499±458	<0.001

Early feeding: >1500 NPG kcal on days 1-3 / late feeding: <1500 NPG kcal on days 1-3

RESULTS (NPG)

cut off Energy kcal	n early	n late	ICU mortality Early n (%)	ICU mortality Late n (%)	p-value	Odds Ratio
1600	342	867	45 (13.2)	160 (18.5)	0.027	1.494
1500	374	835	50 (13.4)	155 (18.6)	0.026	1.477
1400	400	809	54 (13.5)	151 (18.7)	0.024	1.470
1300	439	770	57 (13.0)	148 (19.3)	0.005	1.601
1200	463	746	63 (13.6)	142 (19.0)	0.014	1.492
1100	495	714	70 (14.1)	135 (18.9)	0.030	1.416
1000	538	671	79 (14.7)	126 (18.8)	0.059	1.343
900	571	638	86 (15.1)	119 (18.7)	0.097	1.293
800	607	602	97 (16.0)	108 (17.9)	0.36	1.149
600	689	520	110 (16.0)	95 (18.3)	0.29	1.176