



Siena, 30/05-01/06/2009

GLI ERRORI DA EVITARE NEL DIVEZZAMENTO DEL BAMBINO SANO

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Piacenza

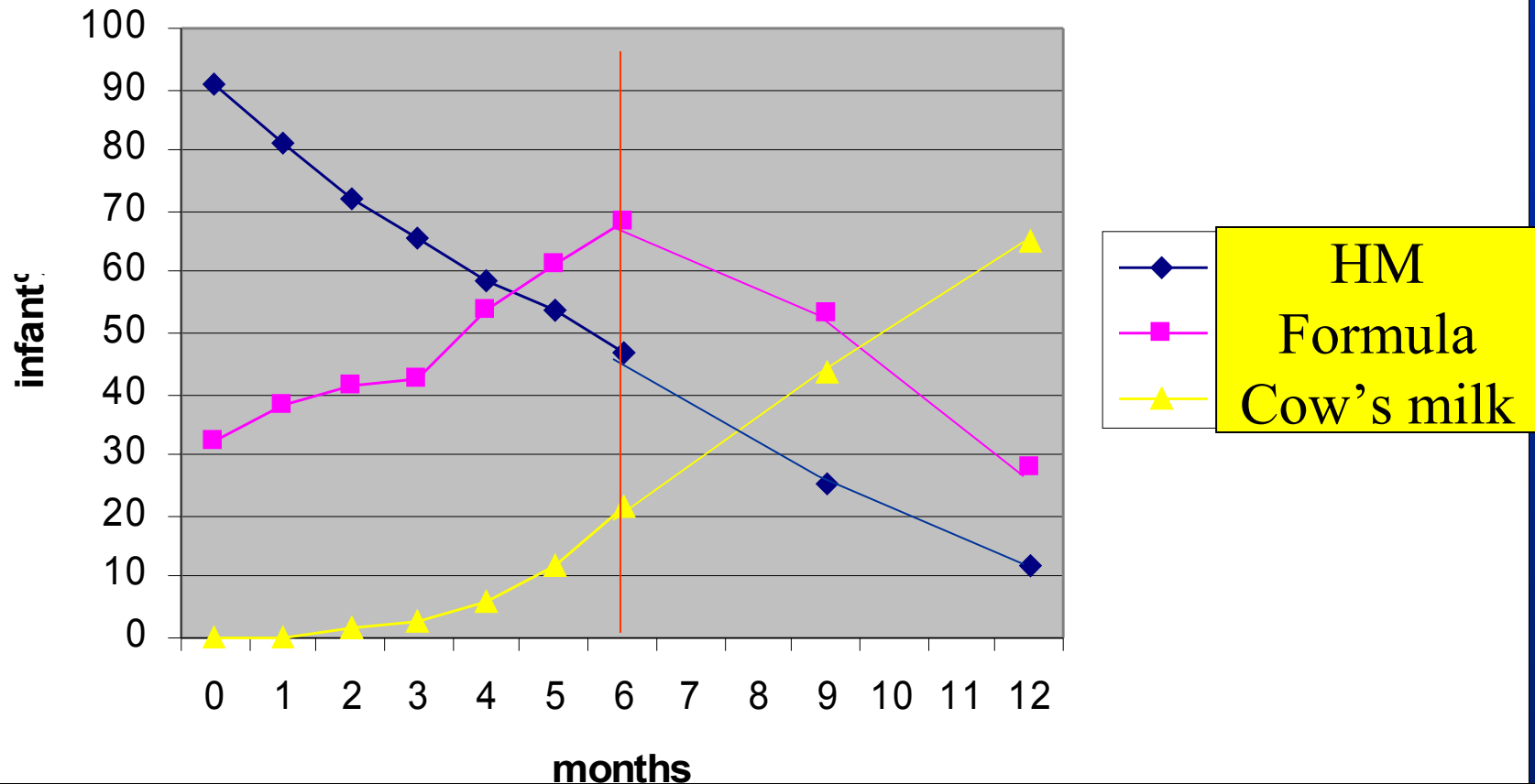


- L'abbandono precoce dell'allattamento al seno
 - L'eccesso di proteine

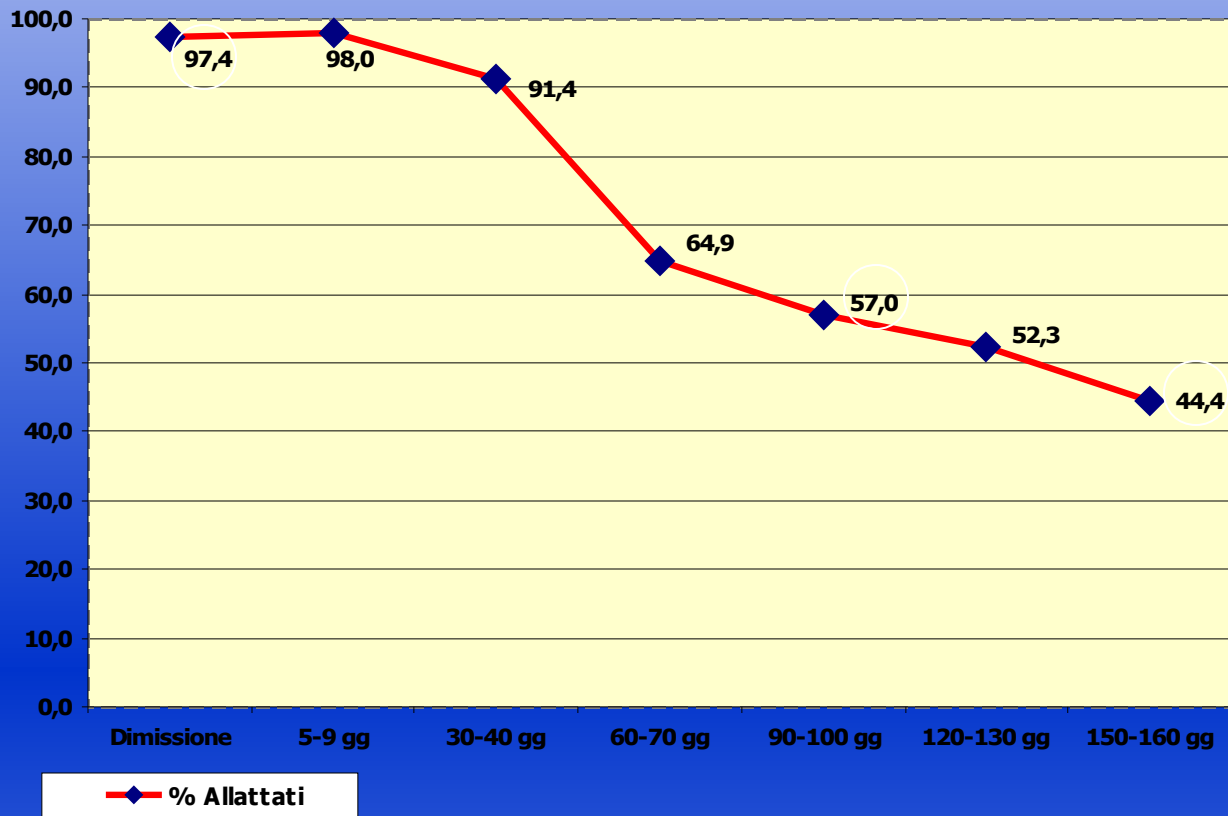
L'abbandono precoce dell'allattamento al seno

Milk intakes in the first 12 months in Italy

(Puer Project: Giovannini M et al, Acta Paediatr 2003; 92: 357)



500 mL whole cow's milk supply 18 grams of proteins



Periodo Somministrazione Questionario	% Allattati
Dimissione	97,4
5-9 gg	98,0
30-40 gg	91,4
60-70 gg	64,9
90-100 gg	57,0
120-130 gg	52,3
150-160 gg	44,4

(atteso:95% esclusivo)

(atteso:50% esclusivo – 60% completo)

(atteso:40% completo)

Latte materno proseguito nel secondo semestre - vantaggi -

- Crescita
- Sviluppo neurocomportamentale
- Comportamento alimentare

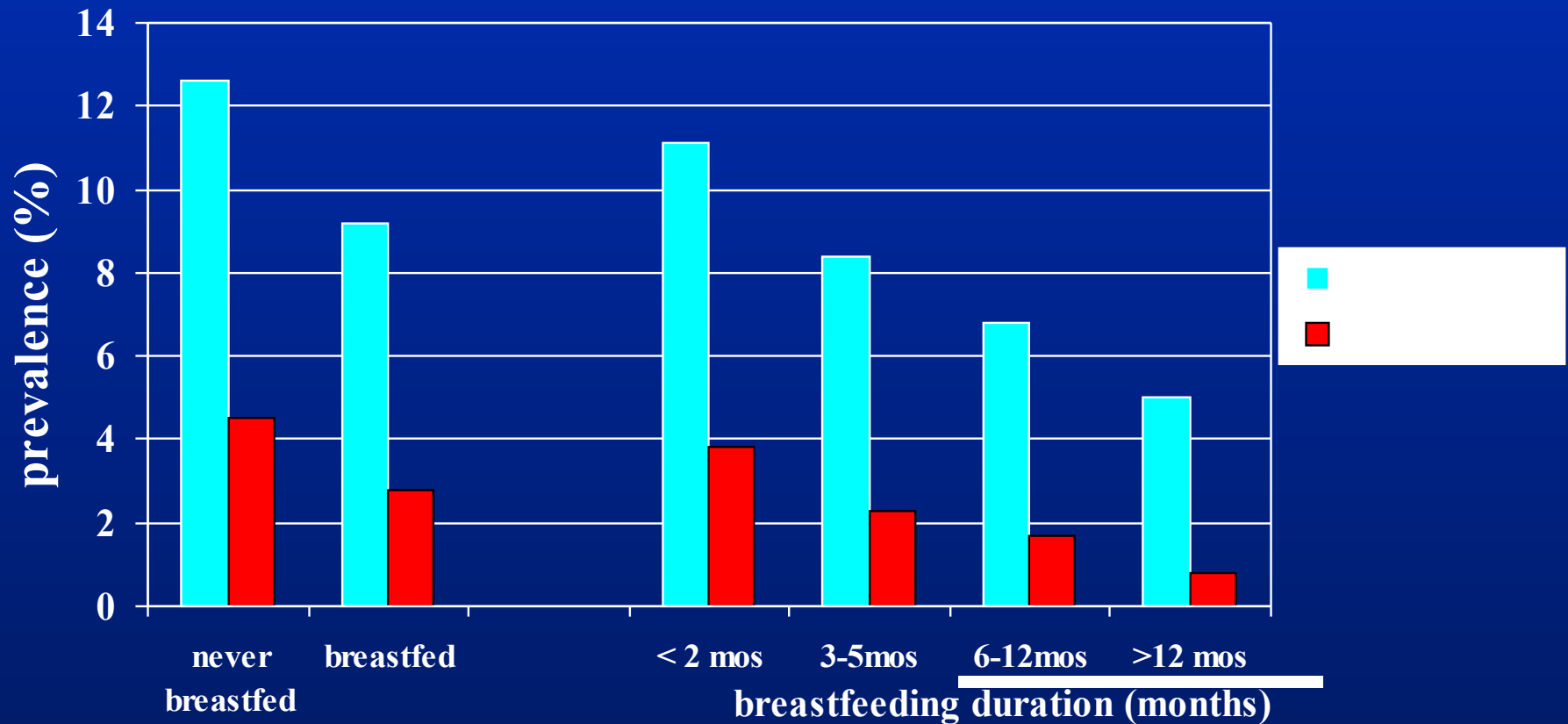
Minore rischio di obesità in età pediatrica per gli allattati al seno

- tra il 21% ed il 34% (Odds Ratio, OR, aggiustato: 0.66 - 0.79) *Dewey K, J Hum Lact 2003;19:9*
- del 22% (OR aggiustato: 0.78) *Arenz S, Int J Obes 2004;28:1247*
- Del 13% → dopo aggiustamento per i maggiori fattori confondenti (obesità dei genitori, fumo materno, e classe sociale : 6 studi) riduzione del rischio al 7% (ancora significativo) *Owen C, Pediatrics 2005; 115:1367*

Does breastfeeding protect against pediatric overweight?
Analysis of longitudinal data from the Centers for Disease
Control and Prevention Pediatric Nutrition
Surveillance System

..... L'allattamento al seno prolungato è associato ad un ridotto rischio di sovrappeso (177000 bambini seguiti fino a 5 anni con BMI valutato ad una media di 4 anni)

Allattamento al seno e prevalenza di sovrappeso e obesità
in 9357 bambini di età compresa tra 5 e 6 anni
(Von Kries R et al, BMJ 1999; 319:147)

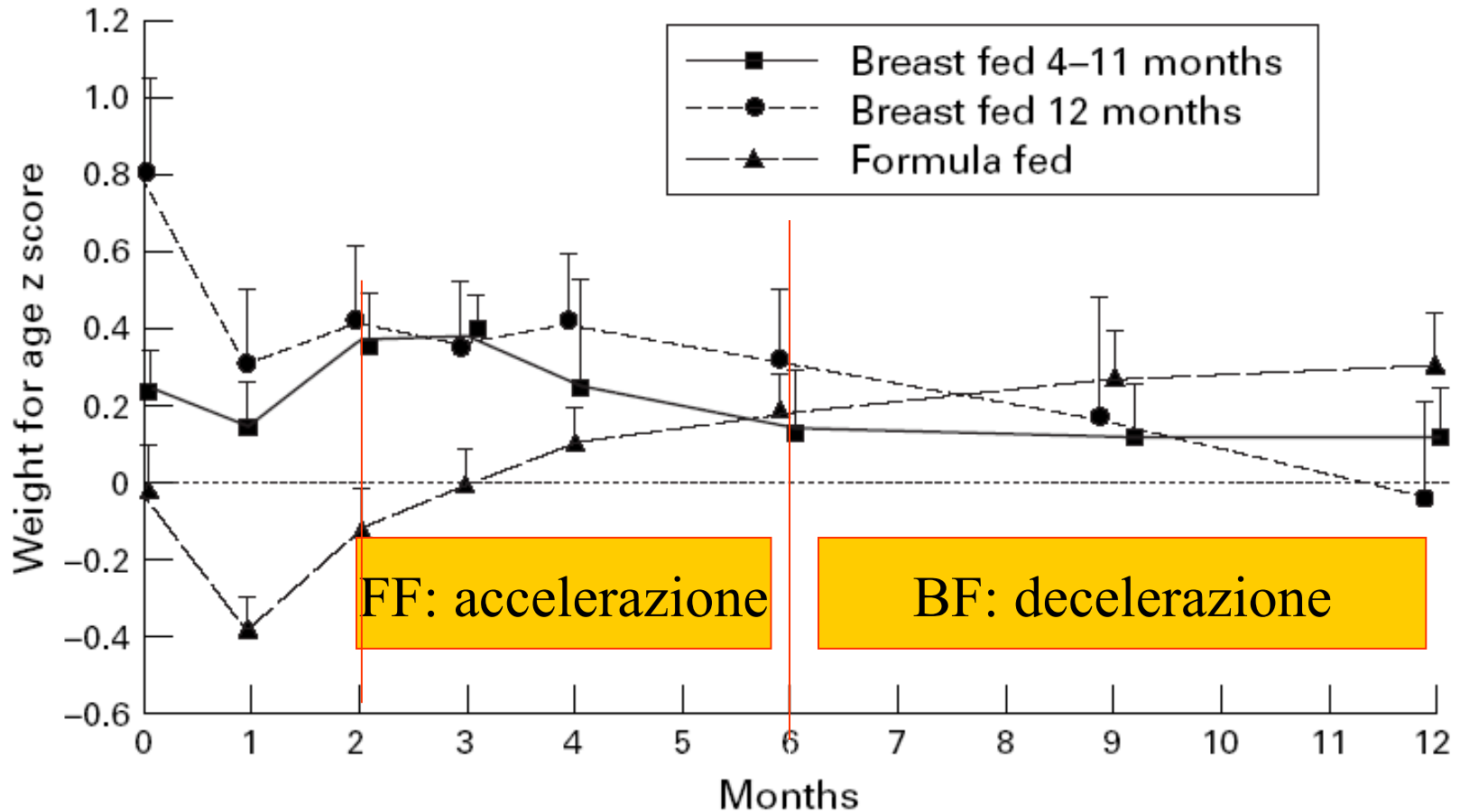


sovrappeso : BMI > 90° percentile per età e sesso

obesità: BMI > 97° percentile per età e sesso

Growth patterns of breastfed and formula-fed Italian infants: an Italian Study

Agostoni C et al, Arch Dis Child 1999; 81: 395



Dati consistenti con l'unico disegno di studio "randomizzato"

Kramer et al, Pediatrics 2002;110:343

quali spiegazioni?

- Quantità e qualità proteica
- Composizione aminoacidica
- Leptina e molecole ormono-simili
- Tutte insieme, in associazione ad altri composti bio-attivi
- Capacità di autoregolarsi dell'allattato al seno

PREREQUISITO FONDAMENTALE:

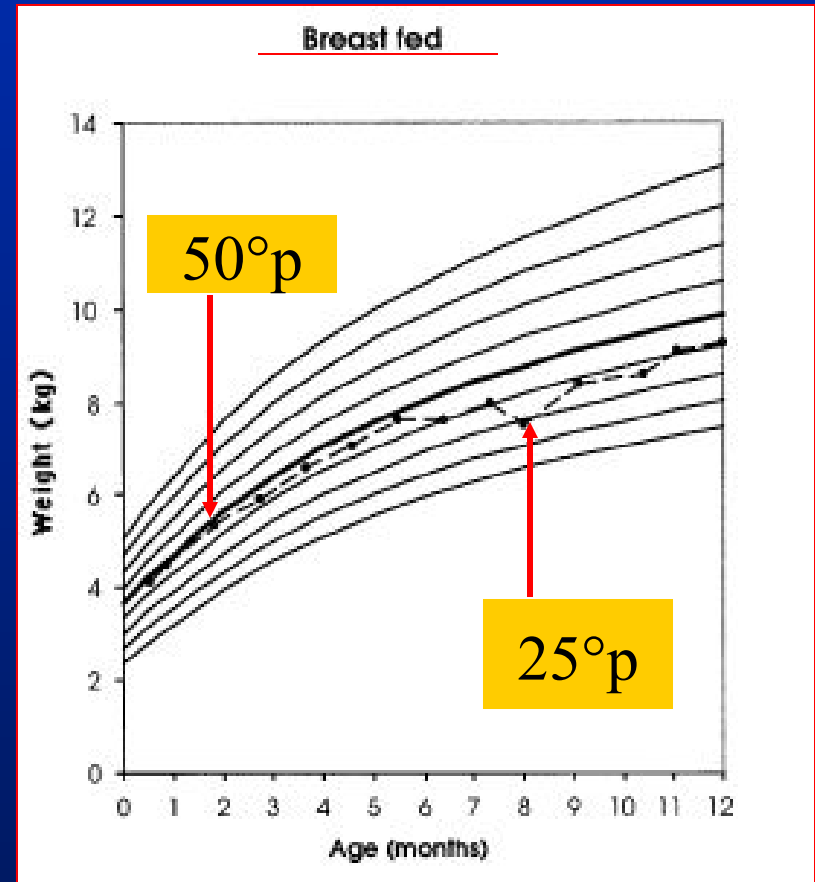
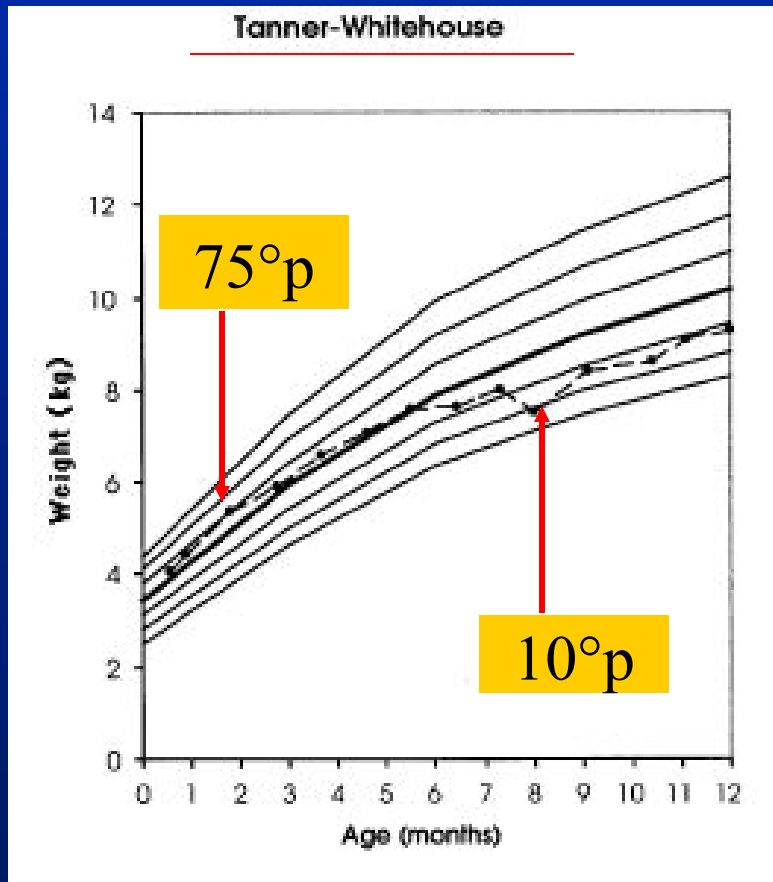
LA CORRETTA VALUTAZIONE DELLA
CRESCITA DEL LATTANTE

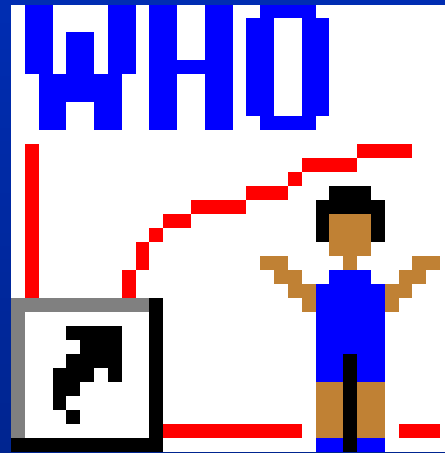
- per prevenire superflue supplementazioni dietetiche
 - per prolungare l'allattamento al seno
 - per controllare adeguatamente la velocità di crescita degli allattati al seno

Weight reference charts for British long-term breastfed infants

TJ Cole¹, AA Paul² and RG Whitehead³

Centre for Paediatric Epidemiology and Biostatistics¹, Institute of Child Health, London; Elsie Widdowson Laboratory², MRC Human Nutrition Research, Cambridge; Church End³, Weston Colville, Cambridge, UK





WHO Anthro 2005.Ink

<http://www.who.int/childgrowth/en/>

The Association Between Duration of Breastfeeding and Adult Intelligence

Erik Lykke Mortensen, PhD

Kim Fleischer Michaelsen, MD, ScD

Stephanie A. Sanders, PhD

June Machover Reinisch, PhD

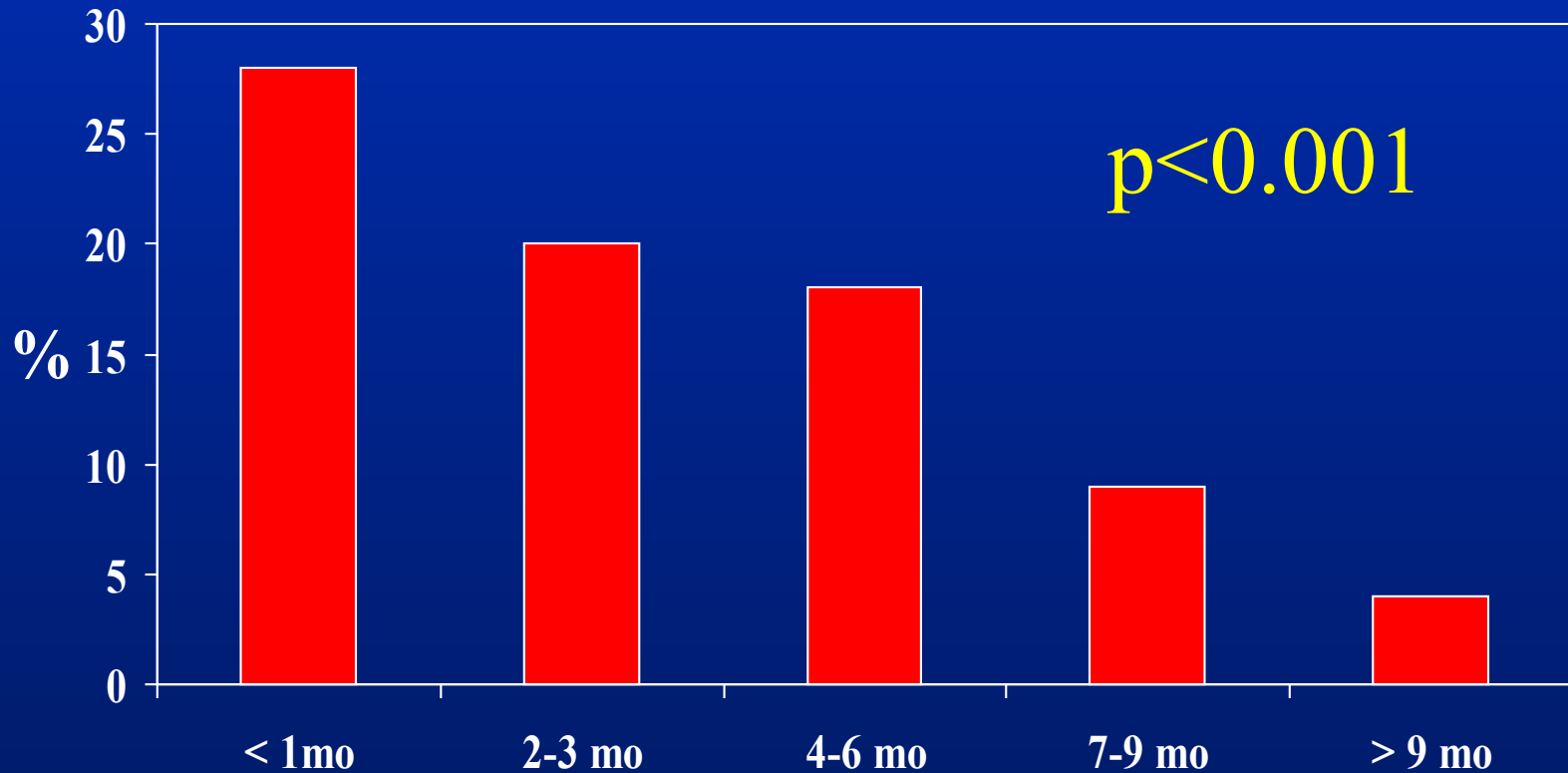
A NUMBER OF STUDIES HAVE SUGGESTED a positive association between breastfeeding and cognitive and intellectual development in early and middle childhood.^{1,2} However, studies of correla-

Context A number of studies suggest a positive association between breastfeeding and cognitive development in early and middle childhood. However, the only previous study that investigated the relationship between breastfeeding and intelligence in adults had several methodological shortcomings.

Objective To determine the association between duration of infant breastfeeding and intelligence in young adulthood.

Design, Setting, and Participants Prospective longitudinal birth cohort study conducted in a sample of 973 men and women and a sample of 2280 men, all of whom were born in Copenhagen, Denmark, between October 1959 and December 1961. The samples were divided into 5 categories based on duration of breastfeeding, as assessed by physician interview with mothers at a 1-year examination.

% of subjects with suboptimal (<90) Full Scale WAIS IQ score



Breastfeeding duration (months)

L'introduzione di solidi mentre la madre ancora allatta:

- Riduce il rischio di celiachia clinica
- Riduce il rischio di sviluppo di diabete tipo I
- Riduce il rischio di risposte IgE mediate

L'eccesso di proteine

Italian Recommended Dietary Allowances (Revised, 1996)

Age	En kcal, range	Protein (adjusted for quality)	
mos	min F/M → max F/M	g/kg/d	%* (x kg)
6-9	653/710 → 950/1027	2.0	8 (x 8)
9-12	739/797 → 1133/1056	1.8	7.6 (x 10)
12-18	854/922 → 1190/1277	1.4	6 (x 11)
18-24	950/1008 → 1306/1382	1.4	6 (x 12)

*calculated

Reports of nutrient intakes in European Countries in the 8-24 mos period

Country	age(mos)	P g/kg	P %	Lip%	Cho%
• Spain	9	4.4	15.7	26.4	58
• France	10	4.3	15.6	27.1	57
• Italy	12	5.1	19.5	30.5	50
• Denmark	12-36	3.3	15	28	57

Rolland-Cachera et al. Acta Paed 1999; 88:365

Protein-Adiposity hypothesis

↑ Protein intake → ↑ IGF-1 (insulin?) levels

→ ↑ adipocyte multiplication

→ early "adiposity rebound"

→ ↑ risk of obesity

Rolland-Cachera et al. *Acta Paed* 1999; 88:365

Which proteins ?

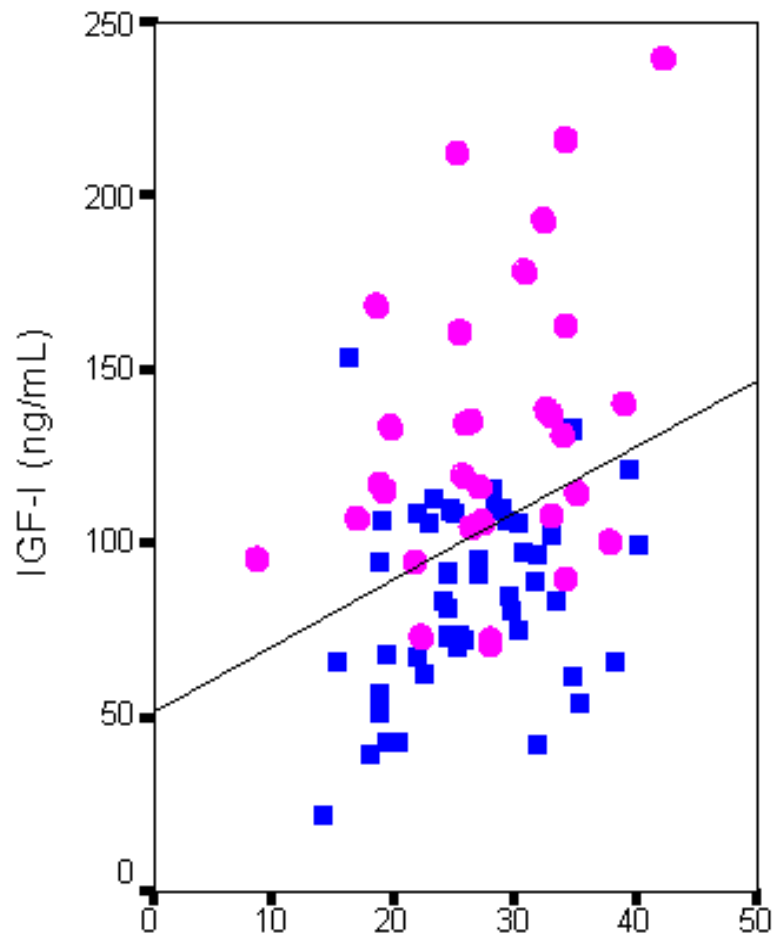
Early type of feeding :
differences in protein intakes!

Milk protein content

- Human milk: 1.1-1.2 g/dL, including 0.4-0.5 g/dL structural proteins or non protein nitrogen
→ “nutritional” proteins equivalent to 0.7 g/dL
→ around 1.3 g/100 kcal
- Formula: 1.2-1.8 g/dL → 1.8-2.7 g/100 kcal
- Whole cow’s milk: 3.5 g/dL → 5.5 g/100 kcal

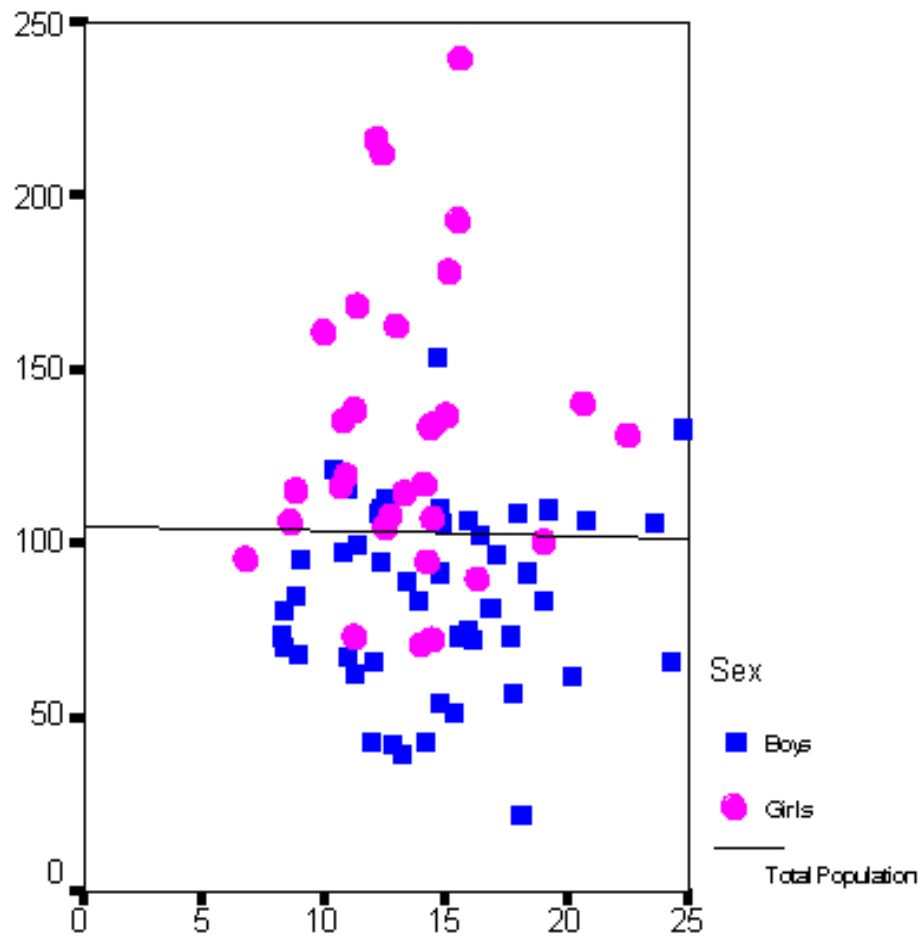
Protein intake and s-IGF-1 in healthy Danish young children

- Cross-sectional study
- 92 healthy 2 ½ year old children
- 7-d food record and s-IGF-I (RIA)
- Correlations between s-IGF-I and height and weight controlled for gender:
 - Height $r=0.37, p=0.001$
 - Weight $r=0.32, p=0.003$



Intake of animal protein (g/d)

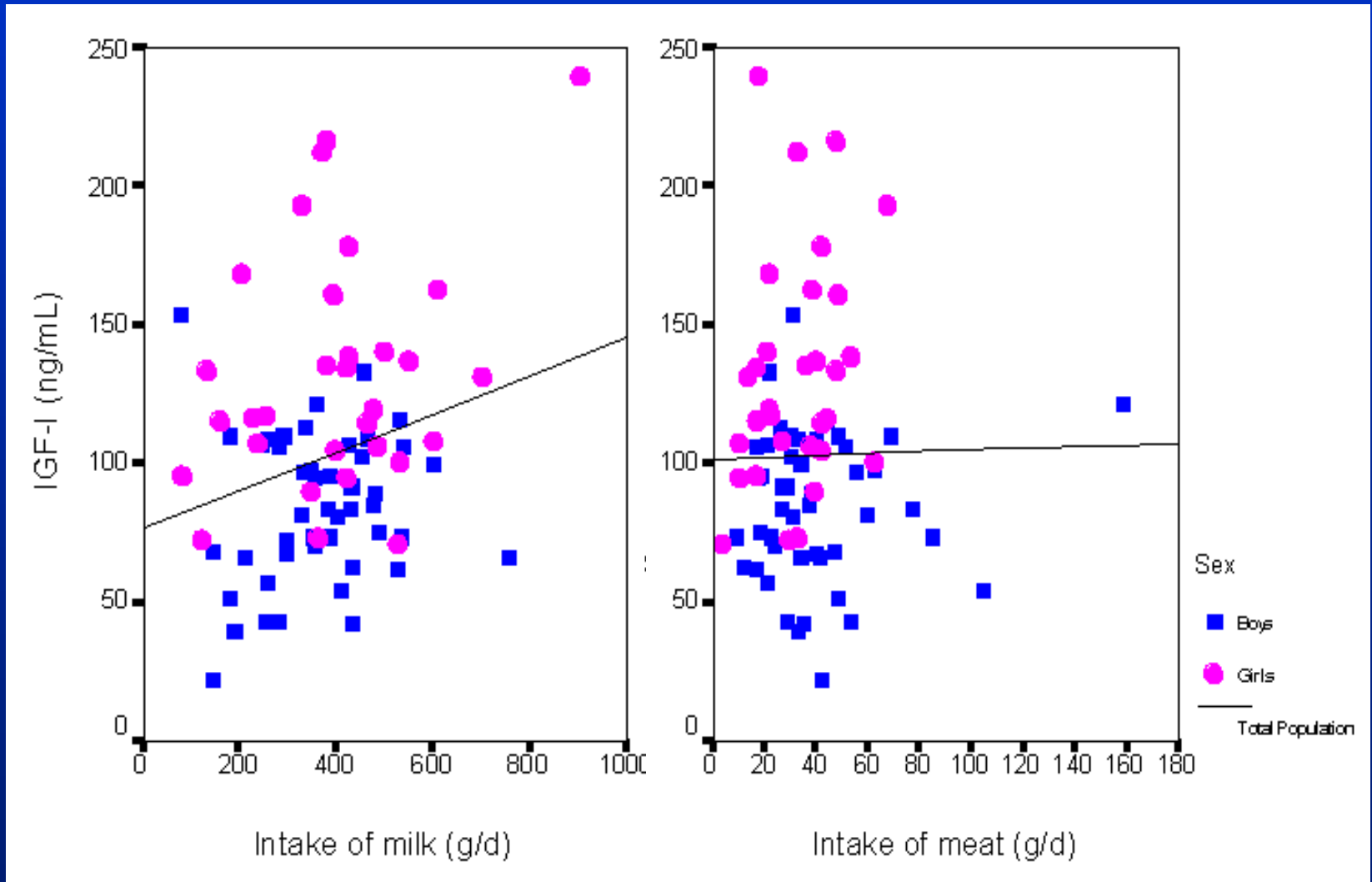
$r=0.31, p=0.006$



Intake of vegetable protein (g/d)

$r=0.07, p=0.55$

Sex
 ■ Boys
 ● Girls
 — Total Population



$r=0.24, p=0.03$

$r=0.12, p=0.31$

Increase in milk intake from 200 to 600 ml equal to a 30% increase in IGF-1

CHOP PROJECT

**Reduced protein in infant formula normalizes weight gain up to age two years:
a randomized clinical trial**

Berthold Koletzko¹, Rüdiger von Kries², Ricardo Closa Monasterolo³, Joaquín
Escribano Subías³, Silvia Scaglioni⁴, Marcello Giovannini⁴, Jeannette Beyer¹, Hans

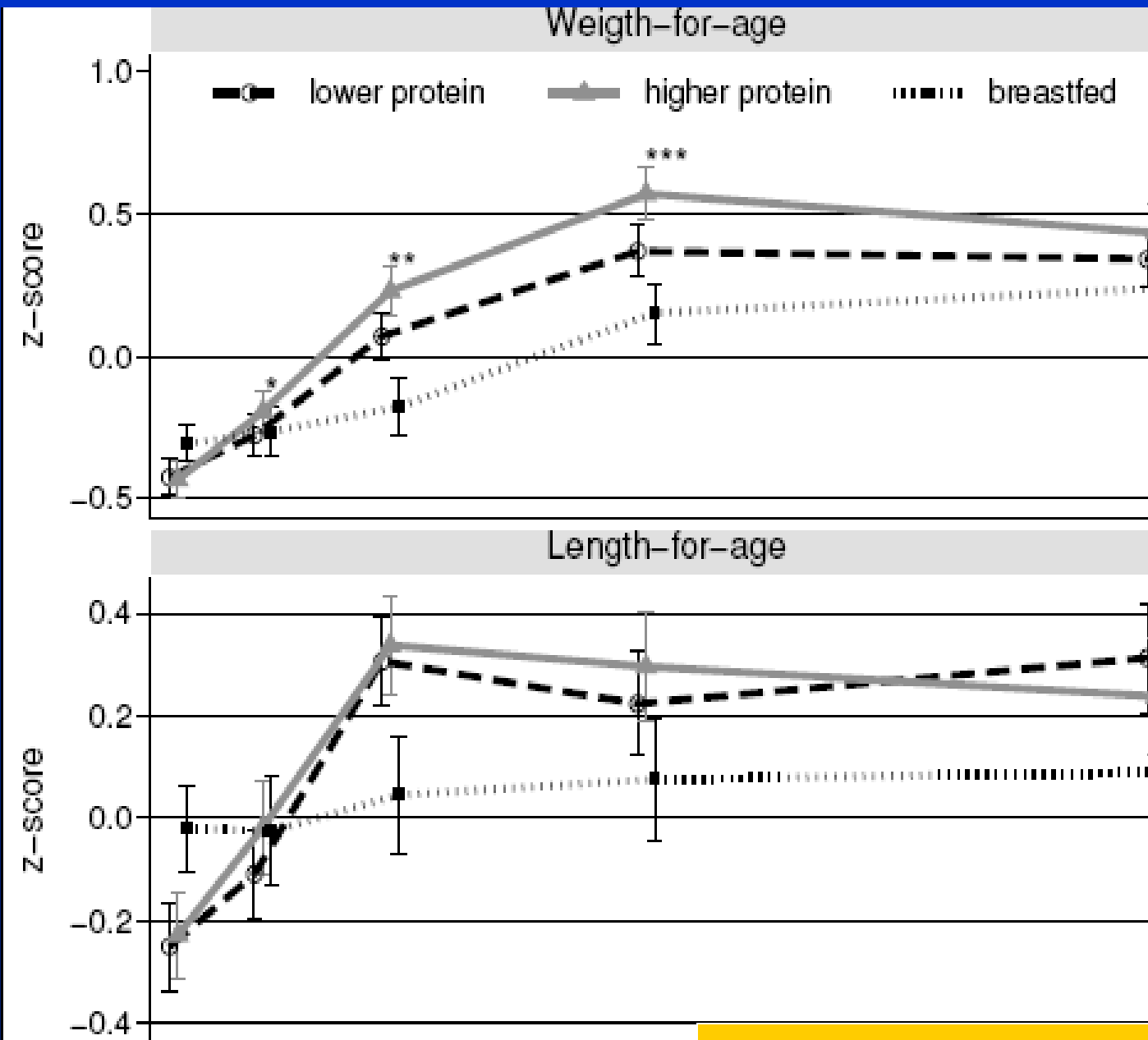
Intervention group				Observational group	
low protein		high protein		breastfed	
No.	%	No.	%	No.	%
540	100.0%	550	100.0%	589	100.0%

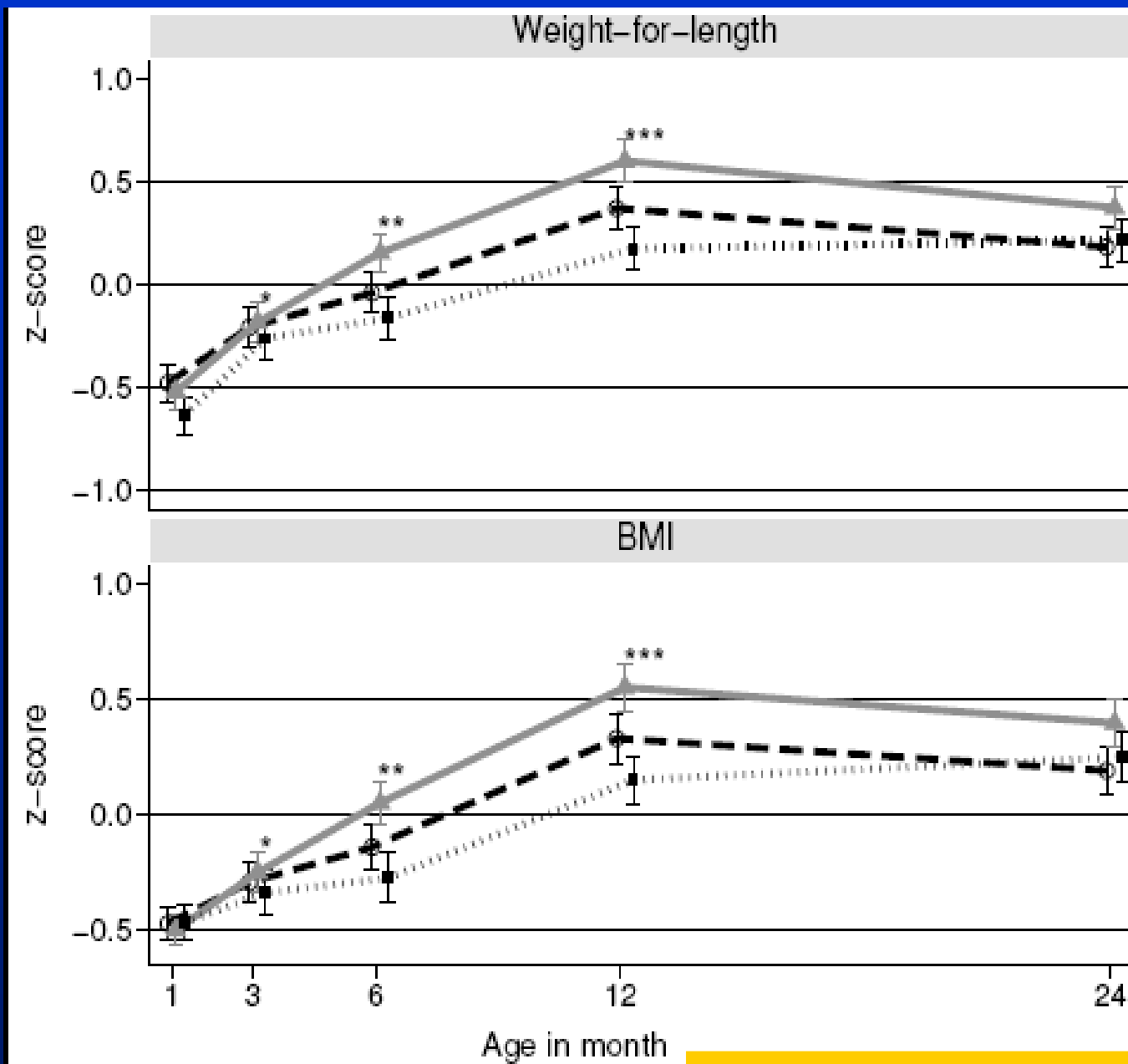
Accepted, AJCN 2009

Table 1: Composition of study formulae*

	Unit	Infant formulae		Follow-on formulae	
		Low protein	High protein	Low protein	High protein
Energy	Kcal/100ml	69,9	69,8	72,7	72,5
Proteins	g/100ml	1,25	2,05	1,6	3,2
Proteins	g/100kcal	1,77	2,9	2,2	4,4
Proteins	% energy	7,1	11,7	8,8	17,6
Lipids	g/100ml	3,9	3,5	4,0	3,27
Carbohydrates	g/100ml	7,5	7,5	7,6	7,6

*identical composition in quality of proteins, carbohydrates and fats





PERCHE' DIVEZZARE?

NUOVE ESIGENZE NUTRIZIONALI

Sopravvenuta insufficienza dell'allattamento al seno esclusivo relativamente all'apporto di **energia, proteine, ferro, zinco, vitamine (A, D)**

Considerando

PROCESSI MATURATIVI NEUROFISIOLOGICI:

Mucosa intestinale (gut closure, sistema immunitario)

Rene

SNC (riflesso di estrusione, masticazione, deglutizione)

Non linee guida ma commento.....

Journal of Pediatric Gastroenterology and Nutrition

46:99–110 © 2008 by European Society for Pediatric Gastroenterology, Hepatology, and Nutrition and
North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition

Medical Position Paper

Complementary Feeding: A Commentary by the ESPGHAN Committee on Nutrition

ESPGHAN Committee on Nutrition: *Carlo Agostoni, †Tamas Decsi, ‡³Mary Fewtrell,
§Olivier Goulet, ¶Sanja Kolacek, ||¹Berthold Koletzko, **³Kim Fleischer Michaelsen,
††Luis Moreno, ‡‡John Puntis, §§Jacques Rigo, ¶¶Raanan Shamir, ||||²Hania Szajewska,
***Dominique Turck, and †††Johannes van Goudoever

- Exclusive breastfeeding for about 6 months is a desirable goal.
- In any case, CF should not be introduced in any infant before 4 completed months (17 weeks) and all infants should start CF by 6 months (26 weeks).
- Although there are theoretical reasons why different complementary foods might benefit breast or formula-fed infants, to devise and implement separate recommendations for the introduction of solid foods for breast fed and formula fed infants may present practical problems.

ESPGHAN CoN, 2008

- Dietary schedules in most countries take origin from cultural factors and available foods.
- The composition of diet during the complementary feeding period, as well as the type of milk feeding, may have health effects not just in the short-term, but also in the medium and long-term

ESPGHAN CoN, 2008

Complementary feeding: what?

MONTHS

0 3 6 9 12

Human milk

Starting formula

Follow-on formula

Cereals

Fruits and vegetables

Meat

Cheese

Fish

Legums

Egg's yolk

Egg's white



A traditional,
updated schedule

A timing for the introduction of potentially allergenic foods?

Taking into account the available data on delaying or eliminating specific foods and also the potential wider nutritional consequences, there is no convincing scientific evidence that avoidance or delayed introduction of potentially allergenic foods, such as fish and eggs, reduces allergies, either in infants considered at-risk for the development of allergy, or in those not considered to be at risk .

ESPGHAN CoN, 2008

Low fat diet > 2-3 yrs of age: The case of whole cow's milk

There are considerable differences between countries in recommendations on the age at which cows' milk with reduced fat intake can be introduced.

The main consideration has been that low fat milk might limit energy intake and thereby growth.

The ESPGHAN Committee concluded in 1994 that fat intake should not be actively reduced before the age of 3 years, but no lower limit for fat content was suggested

The preferential use of cows' milk with a reduced fat content (1.5-2%) was recommended from 2-3 years of life onwards

Gluten

- Both early (<4 months) and late (≥ 7 months) introduction of gluten should be avoided
- Gluten should be introduced gradually whilst the infant is still breast-fed.
- Avoiding early (<4 months) introduction of gluten in at risk infants may also reduce the risk of developing diabetes.

ESPGHAN CoN, 2008

Possibili spiegazioni

- minore quantità di glutine assunto
- protezione contro infezioni a livello intestinale
- effetto immunomodulatore con stimolazione della tolleranza al glutine

Special dietary habits

- 7 • If infants and young children are on a vegetarian diet, it is important that the diet include a sufficient amount (about 500 ml) of milk and dairy products.
 - During the first years of life a vegan diet (one with no animal products) is dangerous because of the risk of B12 deficiency which can seriously affect neuro-cognitive development, and it should be discouraged.

ESPGHAN CoN, 2008

PROGETTO PUER 1999/2000

Indagine estesa a tutto il territorio nazionale
sulla pratica dell'allattamento al seno
e sulle abitudini alimentari
in corso di divezzamento in Italia

Coordinatore: M. Giovannini
Clinica Pediatrica Ospedale San Paolo
Università degli Studi di Milano

PRIMI ALIMENTI SOLIDI INTRODOTTI NELLA DIETA

Alimento	percentuale*
• Frutta	73.1
• Cereali senza glutine	52.5
• Vegetali	40.3
• Carne	13.7
• Latticini	9.2
• Cereali con glutine	2.8

*percentuale totale >100 per alimentazioni combinate

Possibili raccomandazioni (?)

- Latte materno anche durante il divezzamento
- Se il latte materno viene a mancare introdurre una formula adeguata dal punto di vista nutrizionale e funzionale
- Schemi di introduzione di alimenti diversificati per allattati al seno ed artificialmente
(es. iniziare con la carne nell'allattato al seno per l'apporto di ferro e zinco, con i vegetali nell'allattato artificialmente per modulare l'assunzione di proteine ed energia)
- Proseguire l'assunzione di latti a ridotto contenuto proteico fino a 24 mesi

Latte vaccino dal 12° (24°?) mese

- Eccesso proteico (futuro sviluppo di obesità?)
- Deficit di ferro (scarso contenuto, poco assorbito, associato a microemorragie intestinali)

IRON

The available literature does not show a causal relationship between *moderate* IDA and impaired cognitive development, even if such an association is plausible based on studies of the role of iron in brain development and function. Until further knowledge is available, measures should be taken to prevent iron deficiency, for example, promoting exclusive breast-feeding, using iron-fortified formula when formula is required, postponing introduction of whole cow milk until the end of the first year of life, and promoting iron-rich complementary foods.

ESPGHAN CoN, 2002

It is acceptable to add small volumes of cows' milk to complementary foods, but it should not be used as the main drink before 12 months

ESPGHAN CoN, 2008

The child is the father of the man.

Pediatricians should be more interested in adult disease.

L.T. Weaver

Il pediatra deve conoscere la scienza della nutrizione e deve svolgere un ruolo fondamentale quale garante dell' alimentazione del bambino, non solo ai fini di un sua adeguata crescita, ma a salvaguardia del suo potenziale di sviluppo e delle condizioni metaboliche associate al più favorevole “outcome a lungo termine”, relativo alla qualità della vita e al benessere fisico e psichico



Grazie per l'attenzione

