

ISPN Basic Nutrition Support Study Day for Gastroenterology SpRs

7th January 2011

Are We Able to Treat IBD with Diet?

Professor Colm Ó'Moráin, D.Sc. (University of London), D.Sc.Honoris Causa (University of Athens), M.Sc., M.D., M.A., Dip. Imm., F.A.C.G., F.E.B.G., F.R.C.P., F.R.C.P.I., F.T.C.D., A.G.A.F.

Consultant Gastroenterologist, Adelaide and Meath Hospital Incorporating The National Children's Hospital.

Dean of Health Sciences and Professor of Medicine, Trinity College Dublin.

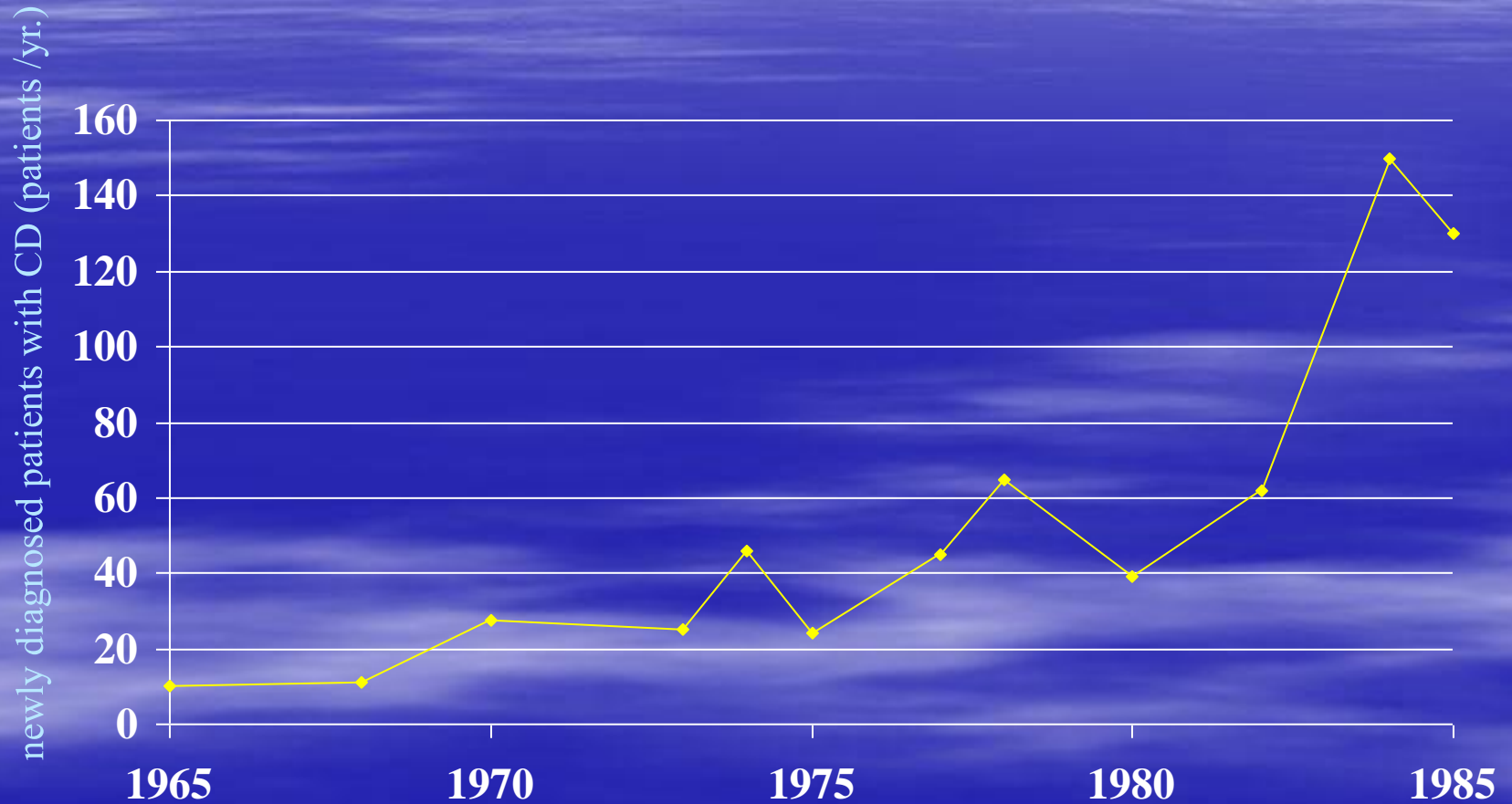
President-Elect, United European Gastroenterology Federation.

Overview of Presentation

- Diet & Malnutrition
- Enteral Diet Therapy
 - Evidence
 - Side effects
 - Mode of action
- Diet - the Future

Diet as a Risk Factor in IBD

Incidence of CD in Japan



Shoda et al, 1996

Diet as a Risk Factor in I.B.D.

- Incidence of I.B.D. in Europe:
 - $0.81 / 10^5$ in Galicia Spain.
 - $4-6 / 10^5$ in Northern Europe.

Diet as a Risk Factor in I.B.D.

E.C.I.B.D.

- Northern Europe (7.0)
- Southern Europe (3.9)

(Shuhaibar, M. 2011)

Incidence of I.B.D. in Ireland

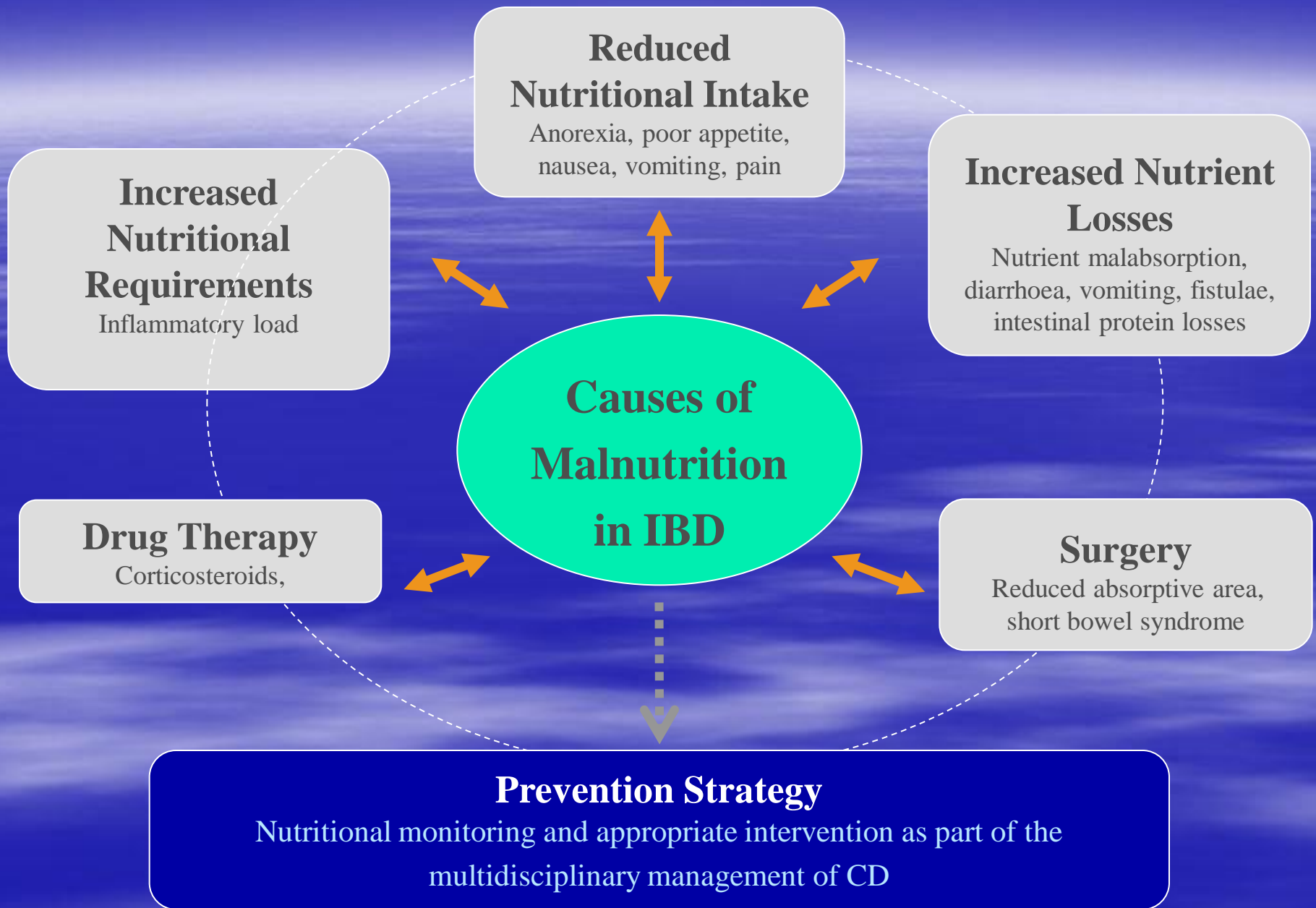
- U.C. (M: F= 18.6 :11.6 / 100,000)
- C.D. (M: F= 4.5 :5.9 / 100,000)

(Shuhaibar, M. 2011)

Diet in IBD



- **Nutritional role**
- **Primary therapeutic role**



Diet and Osteoporosis - General Guidelines

General Advice: all IBD: BSG: Gut 2000

Diet

- Adequate dietary calcium; add calcium tablets if necessary to ensure daily intake of 1500 mg
- Seek and treat vitamin D deficiency

Lifestyle

- Exercise
- No smoking
- No alcohol excess

Diet and Osteoporosis - General Guidelines

Steroids: BSG, Gut 2000

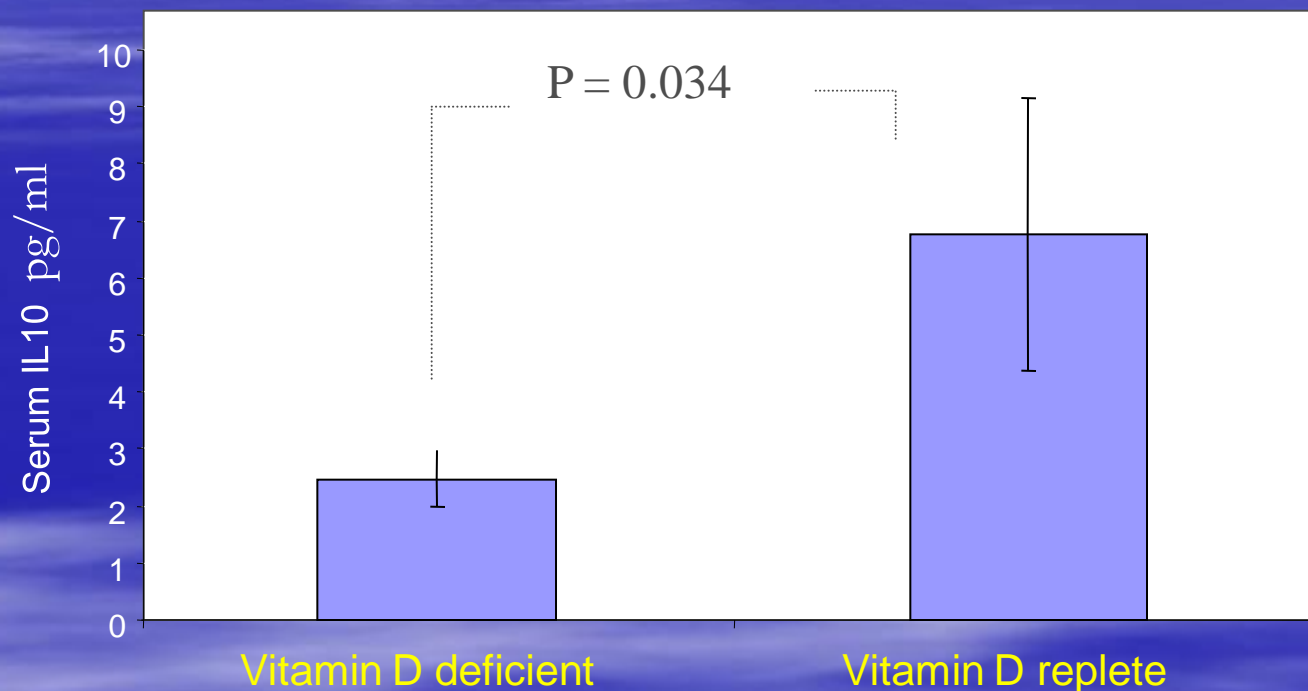
- Lowest dose for as short as possible
- Concurrently 800 units vitamin D daily
- Measure BMD, repeat each year in which steroids are given
- If T score < 1.5 offer bisphosphonate (in addition to vitamin D)

AGA, Gastroenterology, 2003

- Ensure adequate calcium
- At-risk Sub-groups

Vitamin D and Inflammation in CD

25 (OH) D and IL-10 in CD

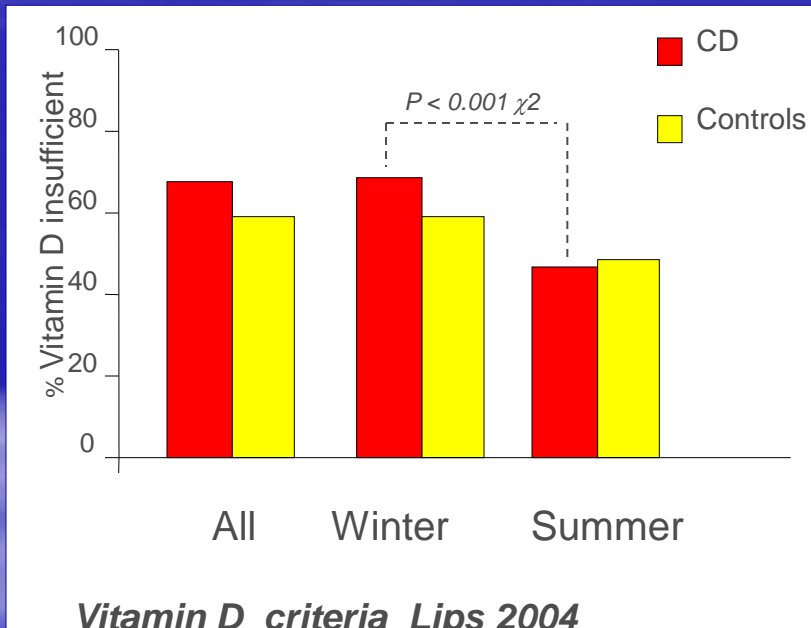


Kelly P, Nic Suibhne T, Ó'Moráin C, O'Sullivan M; IJVNR 2010 in press

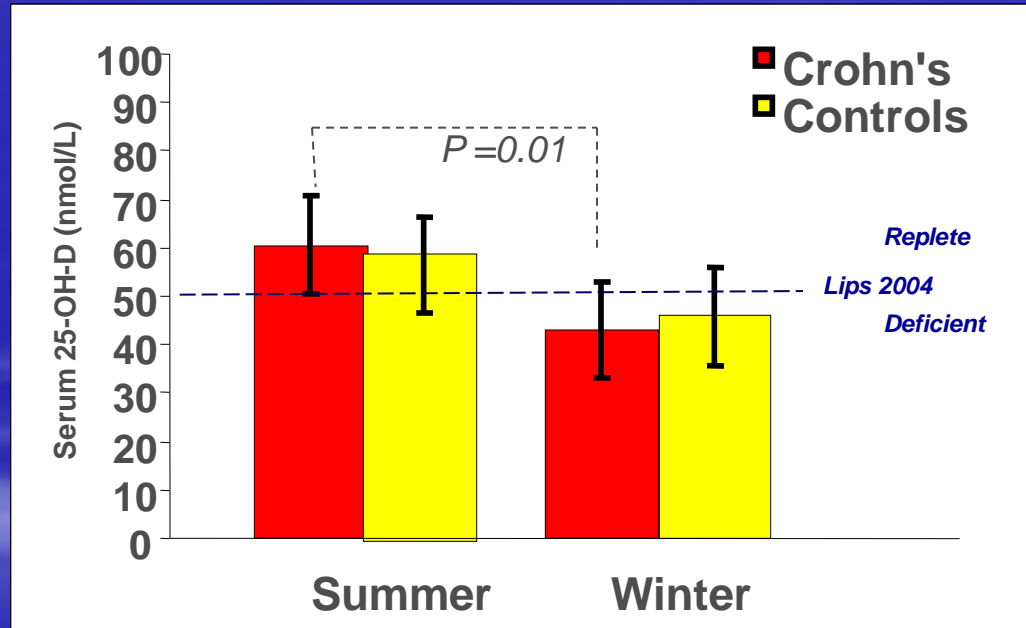
Vitamin D Deficiency is Common in CD

N=200

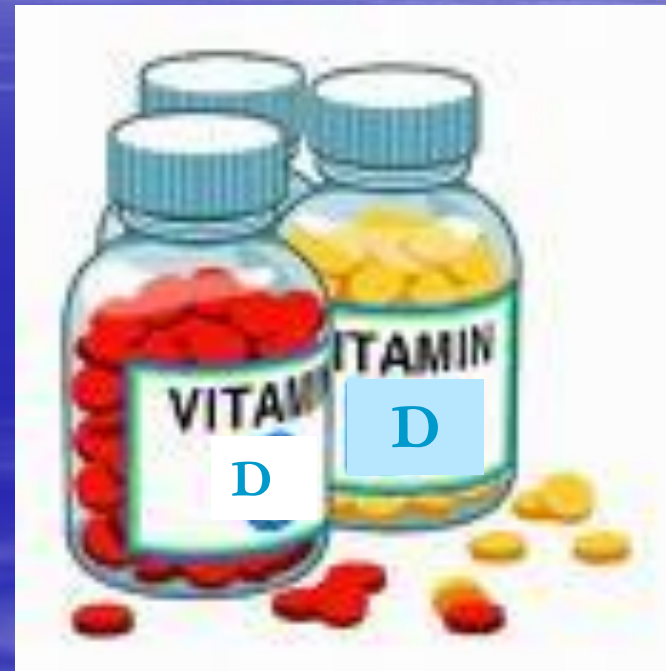
(a) Prevalence of insufficiency



(b) Serum 25-OHD levels



Vitamin D Therapy in IBD?



IRCSET funding – novel roles of vitamin D in inflammation in IBD
O'Sullivan, Raftery 2010-13

Iron Deficiency in IBD

- Iron deficiency occurs in 45% of patients with IBD and is higher among CD than UC.
- Anaemia is present in 35% of IBD patients in OPD and has a significant impact on QOL.

Iron Replacement and I.B.D.



- A recent literature review concluded that iv iron is:
 1. More effective.
 2. Better tolerated.
 3. Improves quality of life to a greater extent.

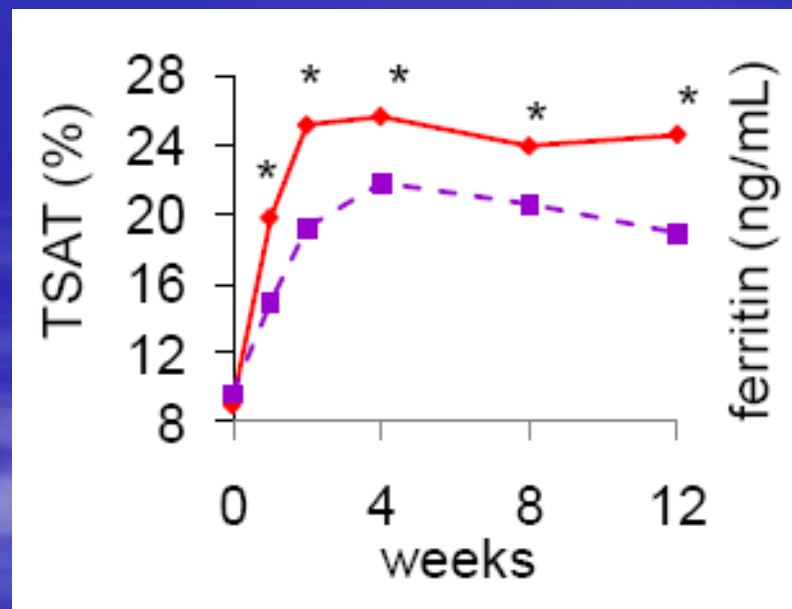
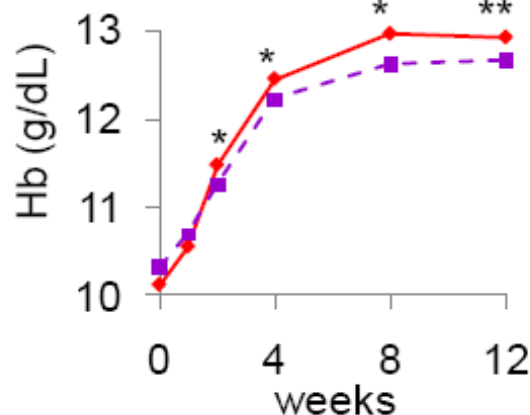
- The mean response of iv iron is 72.5% vs 58.2% for oral iron



Iron Replacement in I.B.D.

- Ferric carboxymaltose versus Iron Sucrose (n=475) in IBD

Haematologic parameters



—◆— FCM —■— IS ; *p < 0.001 and **p ≤ 0.015 for change vs. baseline

Iron Replacement in I.B.D.

- Both treatments showed significant improvement in quality of life.
- Fewer infusion site reactions 0.4 vs 2.5%.
- FCM also required fewer infusions and better adherence.

Efficacy and safety of standardised ferric carboxymaltose doses vs. individually calculated iron sucrose doses for IBD-associated iron deficiency anaemia: A multicentre, randomised controlled trial (FEGRIcor)

R. Evstatiev, et al. P0420

Enteral Nutrition as Primary Therapy in CD

Primary Therapy

1. Elemental Diet

nutrients in simplest form
(protein as aa, short chain
fatty acids, glucose)

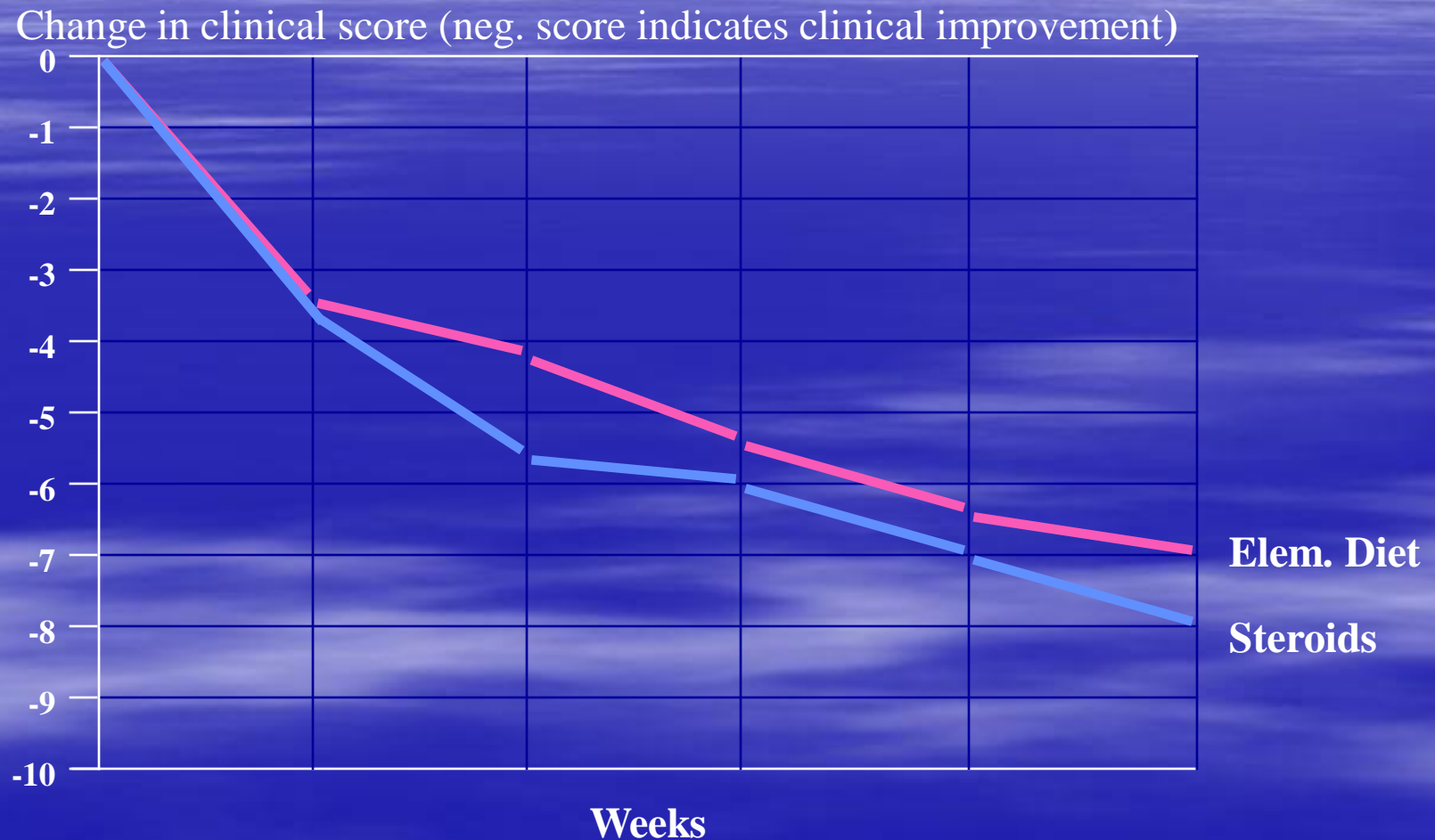
2. **Semi-
Elemental**
(peptide)

3. **Polymeric**
(whole protein,
routine use, cheap)

Landmarks in Diet Therapy

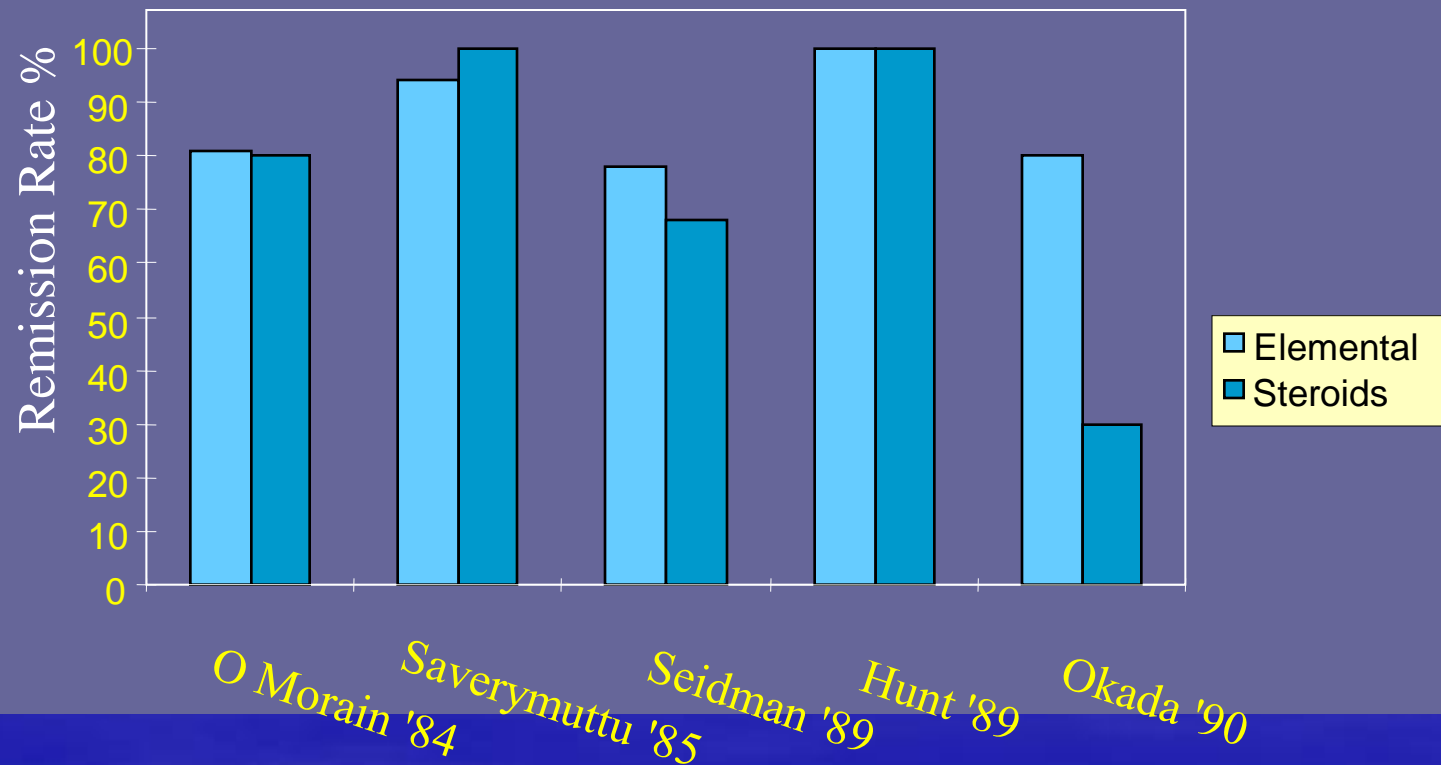
- 1970s Uncontrolled trials
- 1984 Controlled trial
- 1990s Meta analyses
- 2000 Reviews
- 2000+ Guidelines; Era of Biologics

Elemental Diet v. Steroids in CD



O' Morain et-al Digestive diseases and sciences 1987

Primary Therapy: Enteral Nutrition v Steroids in CD



Enteral Diets as Primary Therapy Meta-analysis

- Steroids are superior
- Enteral better than placebo (60%)
- No difference between polymeric v **elemental** :
peptide inferior
- Not essential to be elemental
- Diet more suited to some subgroup

Messori 1990, Fernandez-Banares 1995

Enteral Diets - Efficacy

- Elemental diets induced remission in 77-100% of compliant patients (*4 trials; n = 111*),

***Elemental diets are as effective
as steroids***

O'Morain '84, Hunt '89 Seidman '91, Gorard '93

Drug Therapy – Side Effects

Drug	Side effects
Corticosteroids	Bone disease, growth suppression, Cushings
Newer steroids	Fewer side-effects
Methotrexate	Bone marrow suppression, abnormal LFT's
Cyclosporin	Nephrotoxicity, hypertension
Azathioprine	Pancreatitis, Bone marrow suppression
Sulphasalazine	Rashes, allergy

Nutritional Therapy - Side effects

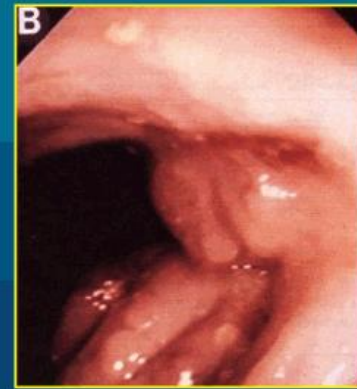
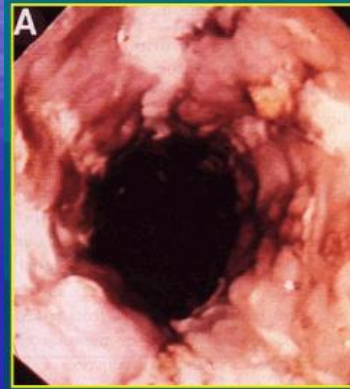
- Free from major side effects.
- Safe therapy.
- Diarrhoea, nausea, headaches.

Nutrition - End-Points for Clinical Trials?

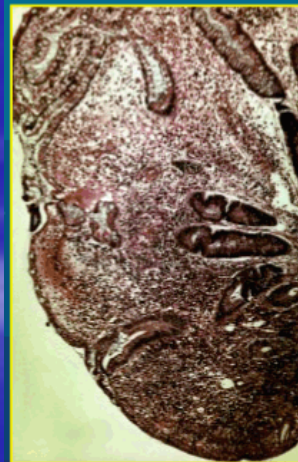
- Drop in CDAI - 70 points.
- Improved Quality of Life.
- Changes in inflammatory cytokine levels.

Nutrition - End-Points for Clinical Trials?

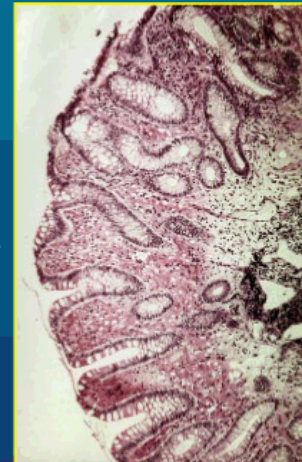
Endoscopic healing



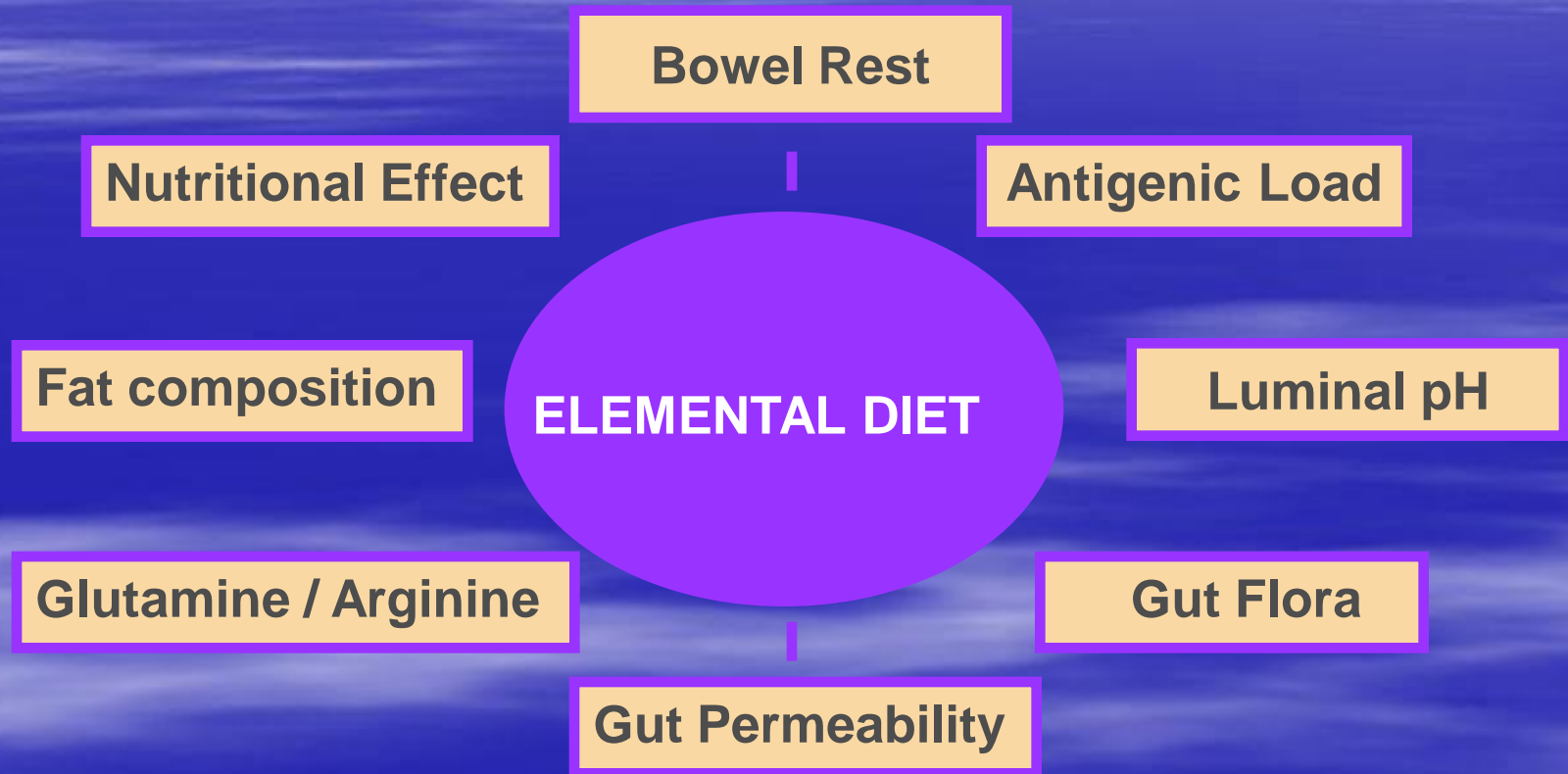
Histological healing



4 Weeks
post-
treatment



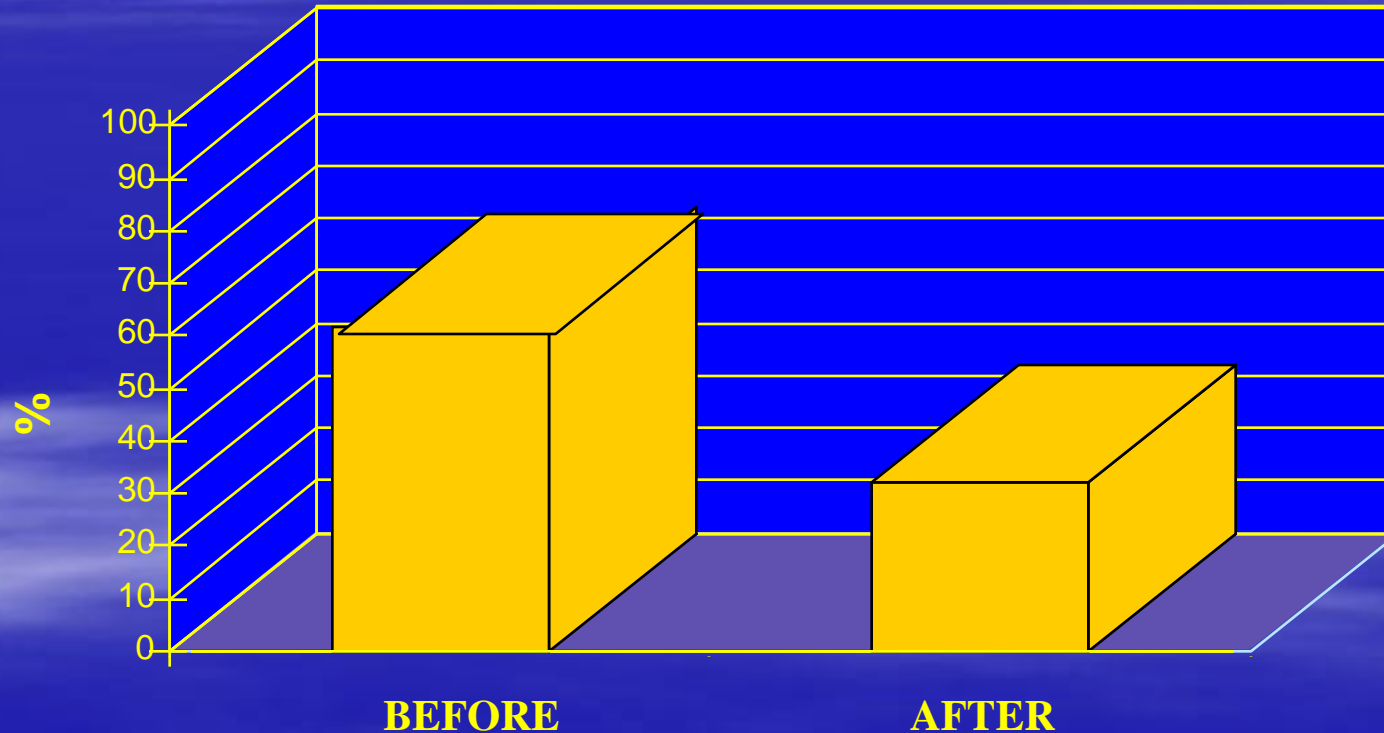
Elemental Diet - Mode of Action



Mode of Action : Intestinal Permeability

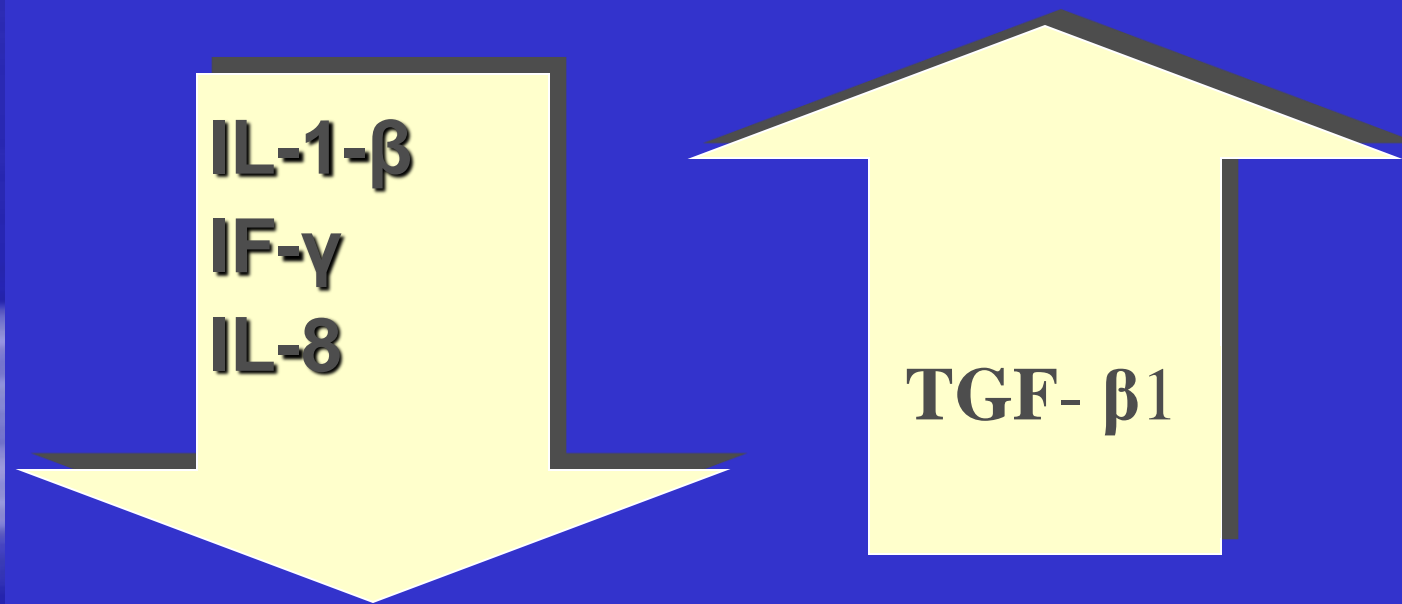
crEDTA Before and After Rx with an Elemental Diet

Teahon et al 1990



Mode of Action: Anti-Inflammatory

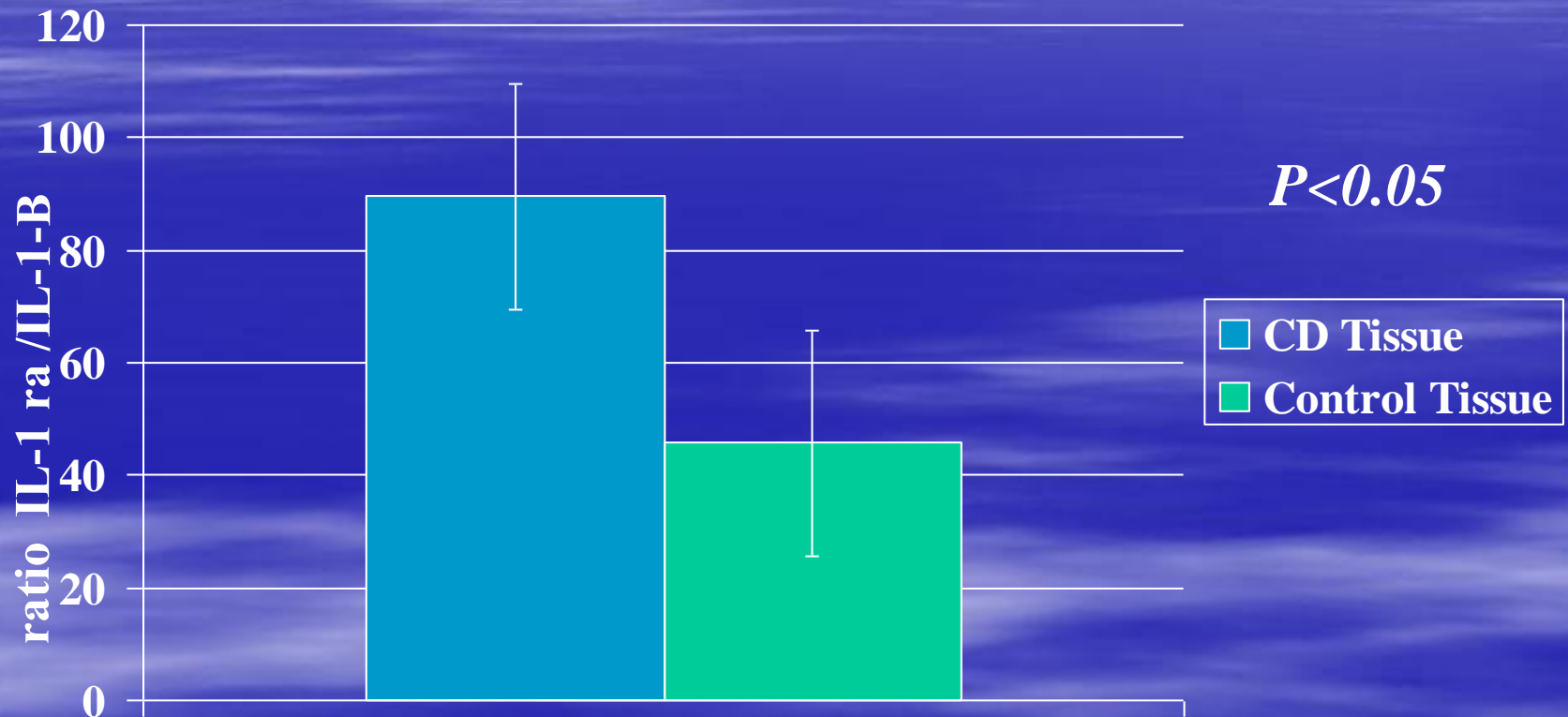
Mucosal Cytokine (mRNA) Response to Polymeric
Diet CT3211



Fell, 2000

Mode of Action: Anti-inflammatory

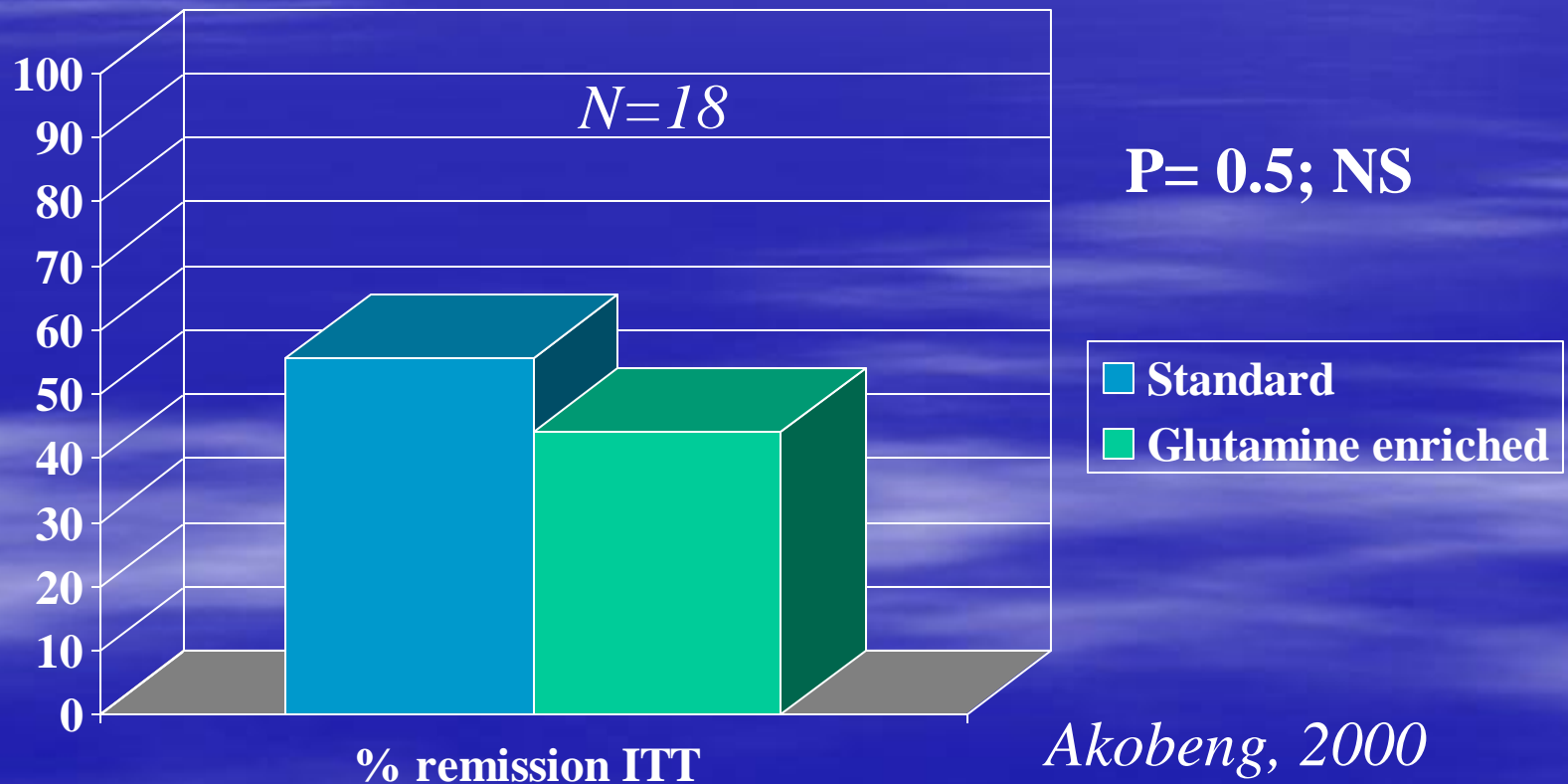
Effects of an enteral diet on CD-affected tissues in vitro



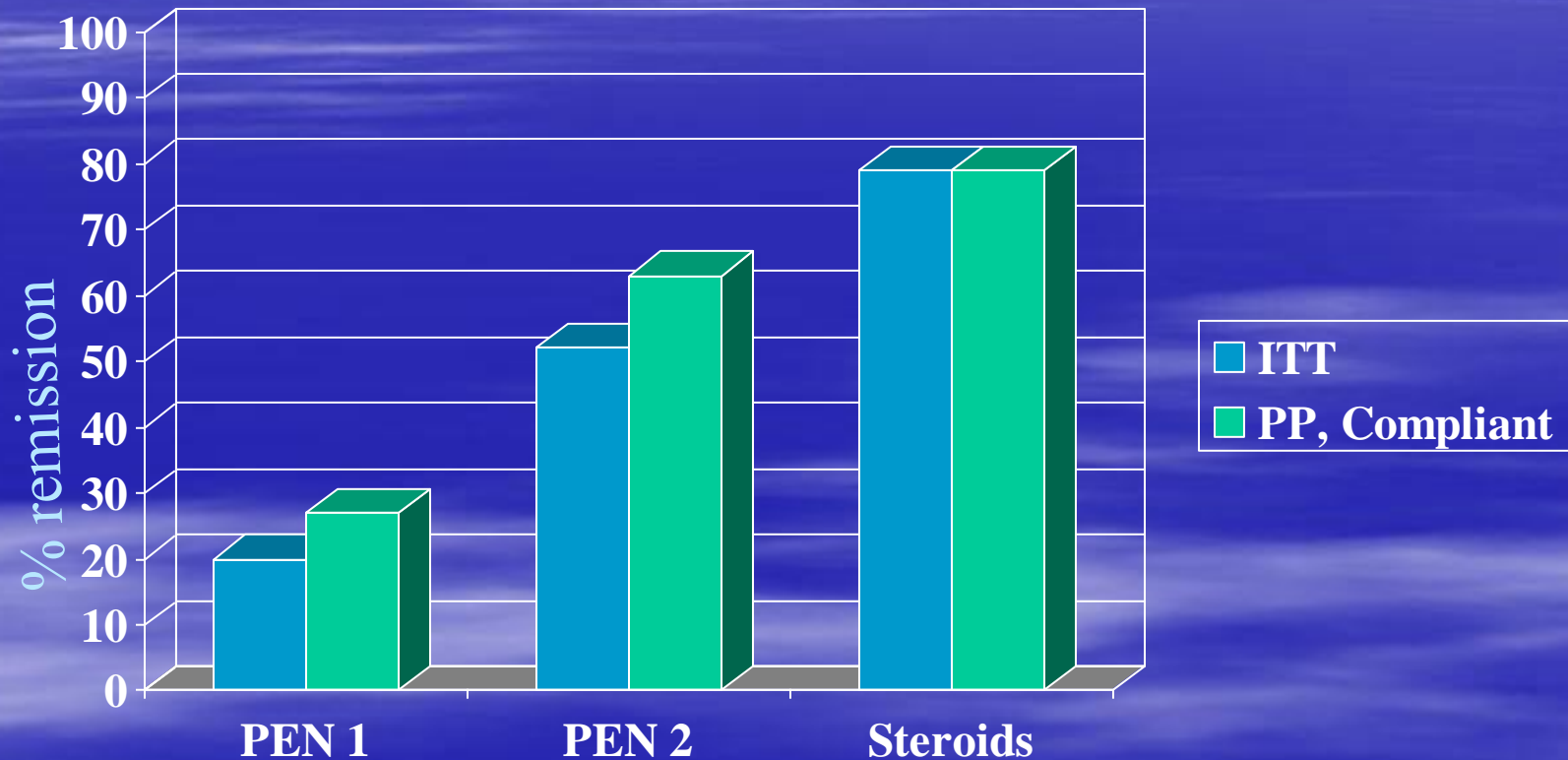
Meister, et al 2001

Mode of Action: Glutamine

Glutamine-enriched polymeric diet in active CD

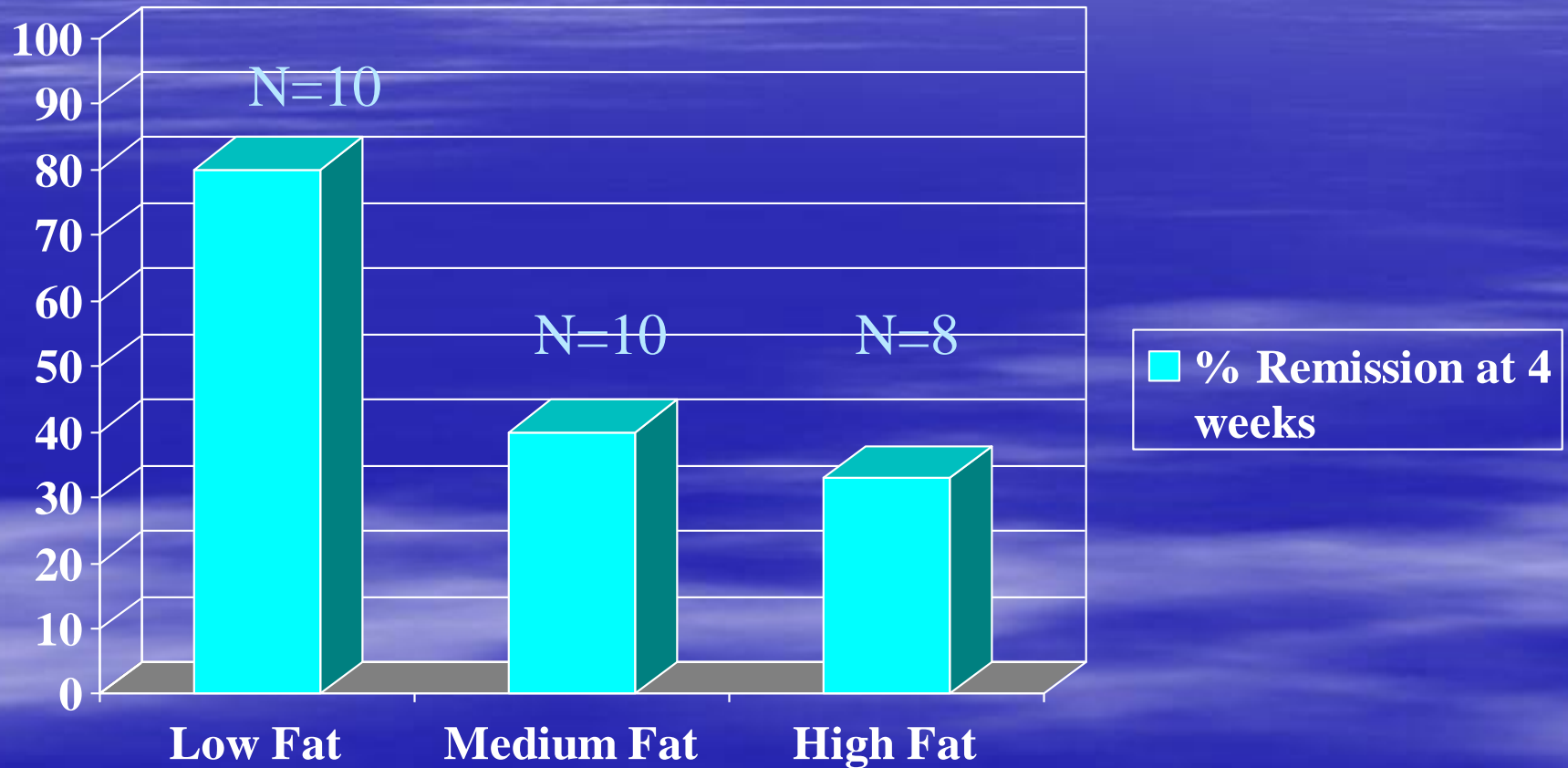


Mode of Action : Role of Fat



Gassull et al, 2002

Mode of Action : Role of Fat



Bamba et al, 2003

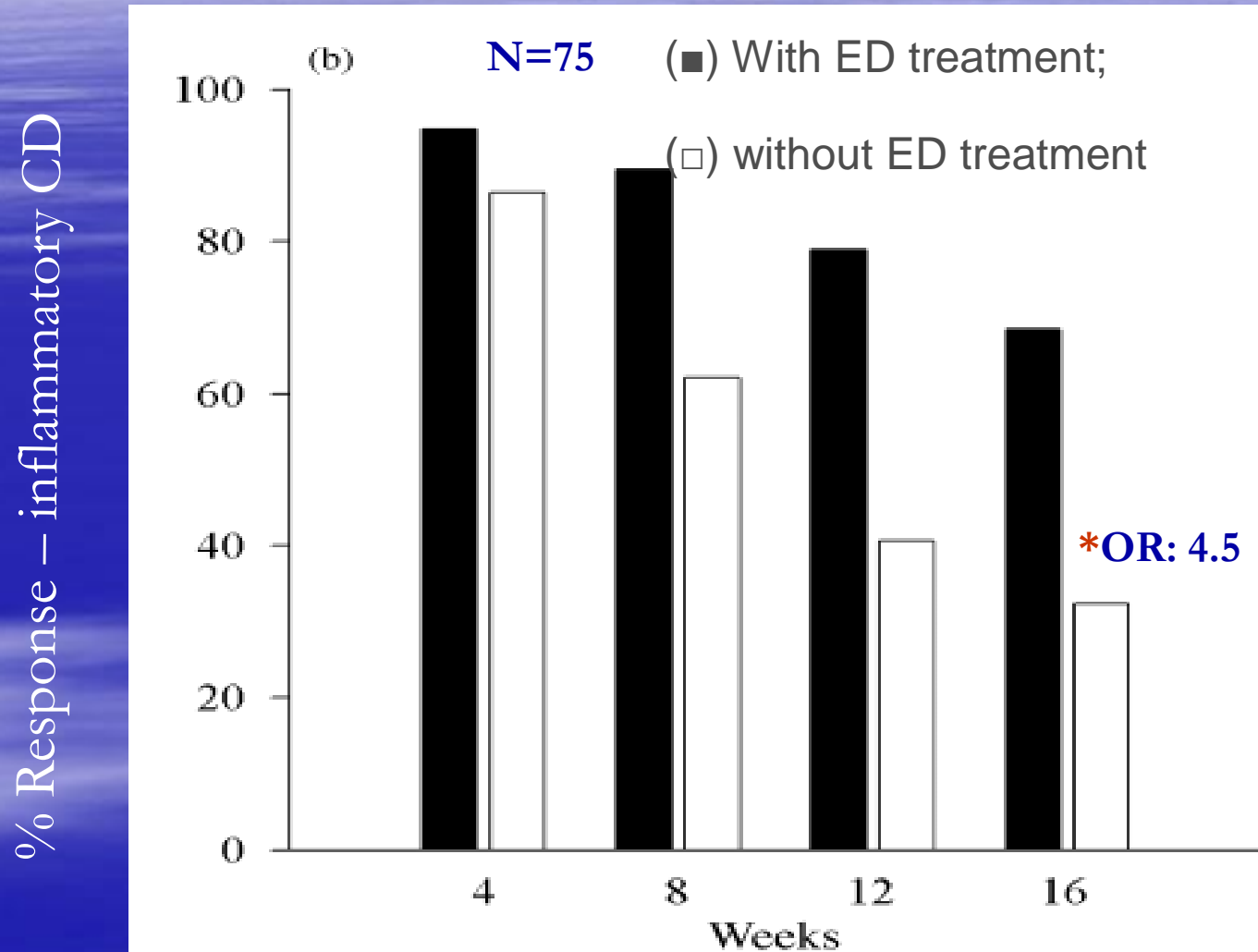
Fat: Fish Oil in Crohn's Disease

	Remission at 1 Year
Fish Oil (2.7g n-3 FA) $n = 39$	23 (59%)*
Placebo $n = 39$	10 (26%)*

*** $P = 0.003$**

Belluzzi et al, N Eng. J Med, 1996

Elemental Diet and Infliximab



EN as Primary Therapy : Guidelines

- **Europe - ESPEN (2006)**
 - First line therapy in **children**
 - Therapy in **adults** in whom steroids are not suitable
- **UK - BSG (2004)**
 - First line in **children** with impaired growth/malnutrition
 - **Adults** – specific cases

Enteral Diets In CD - Summary

INDICATIONS

- Active disease
- Paediatric patients
- Conventional treatment failure
- Steroid dependence
- Steroids poorly tolerated / side-effects
- Strictures due to oedema
- Pregnancy

Diet and IBD - The Future

- Basic research
- Clinical trials
- Multidisciplinary
- Disease specific formula

Dublin, Ireland



6th Congress of ECCO
10 year ECCO anniversary
February 24-26, 2011