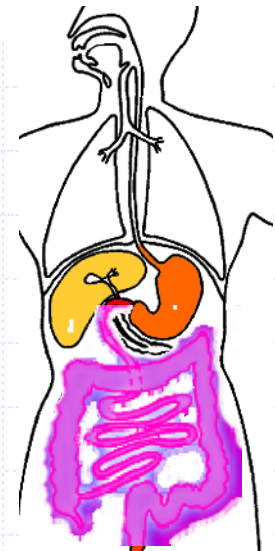


Inflammation in Irritable Bowel Syndrome: The Cause of Psychiatric Co-Morbidity?

Prof. Ted Dinan

Irritable Bowel Syndrome (IBS)

- ✦ It is characterized by a group of symptoms in which abdominal pain or discomfort is associated with a change in bowel pattern
- ✦ IBS affects approximately 10-20% of the general population
- ✦ It is the most common disease diagnosed by gastroenterologists
- ✦ Current therapies are frequently ineffective



Patient Characteristics

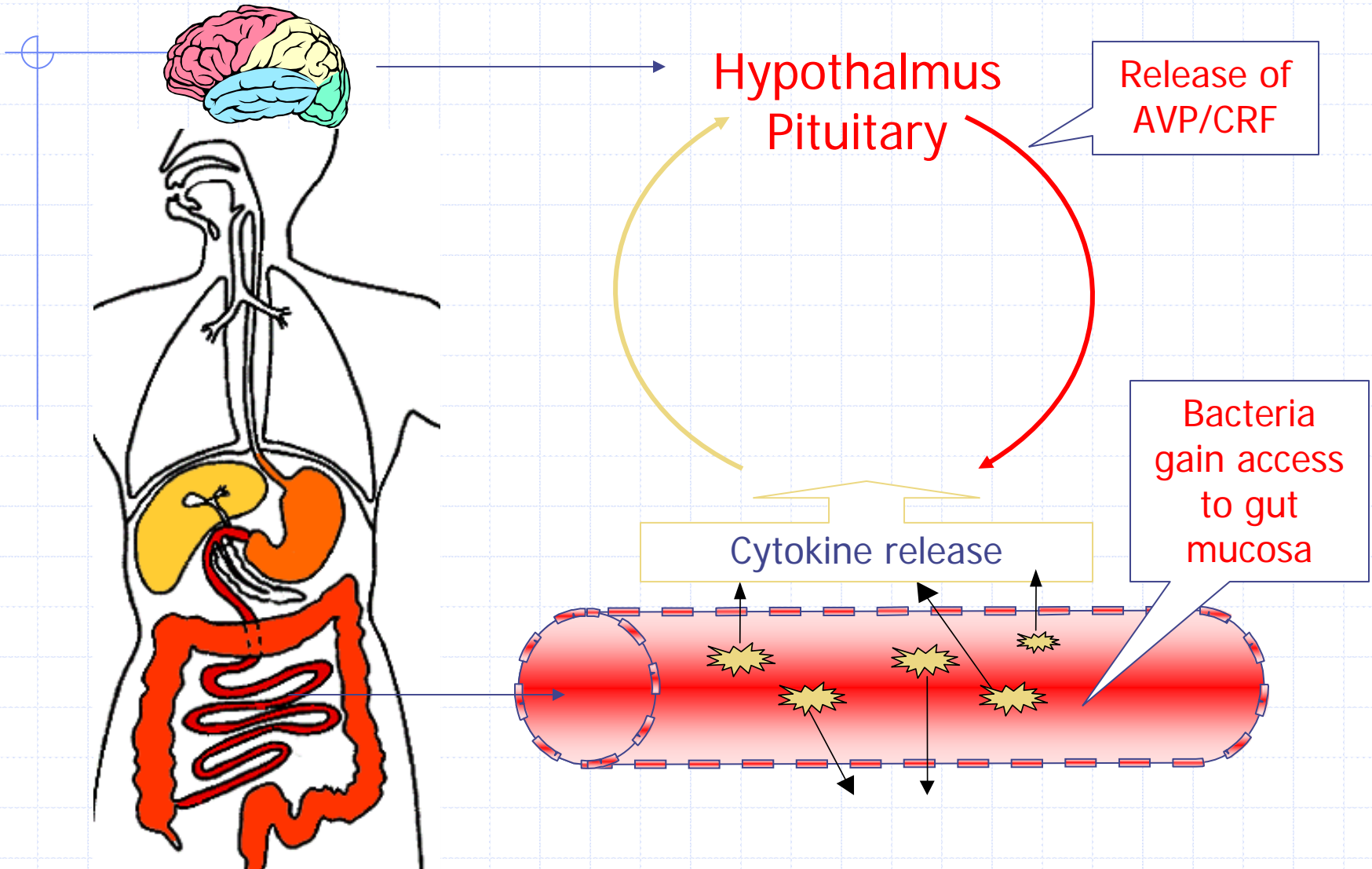
- ◆ 70% diarrhoea predominant
- ◆ 20% alternating
- ◆ 10% constipation predominant

Psychiatric illness in the form of depression, anxiety or somatization disorder is present in about 30% of cases

Psychological factors

- ◆ Stressful life events
- ◆ Sexual and physical abuse
- ◆ Psychiatric illness
- ◆ High trait anxiety
- ◆ Poor health-related quality of life

Brain-gut axis dysregulation



Visceral hypersensitivity

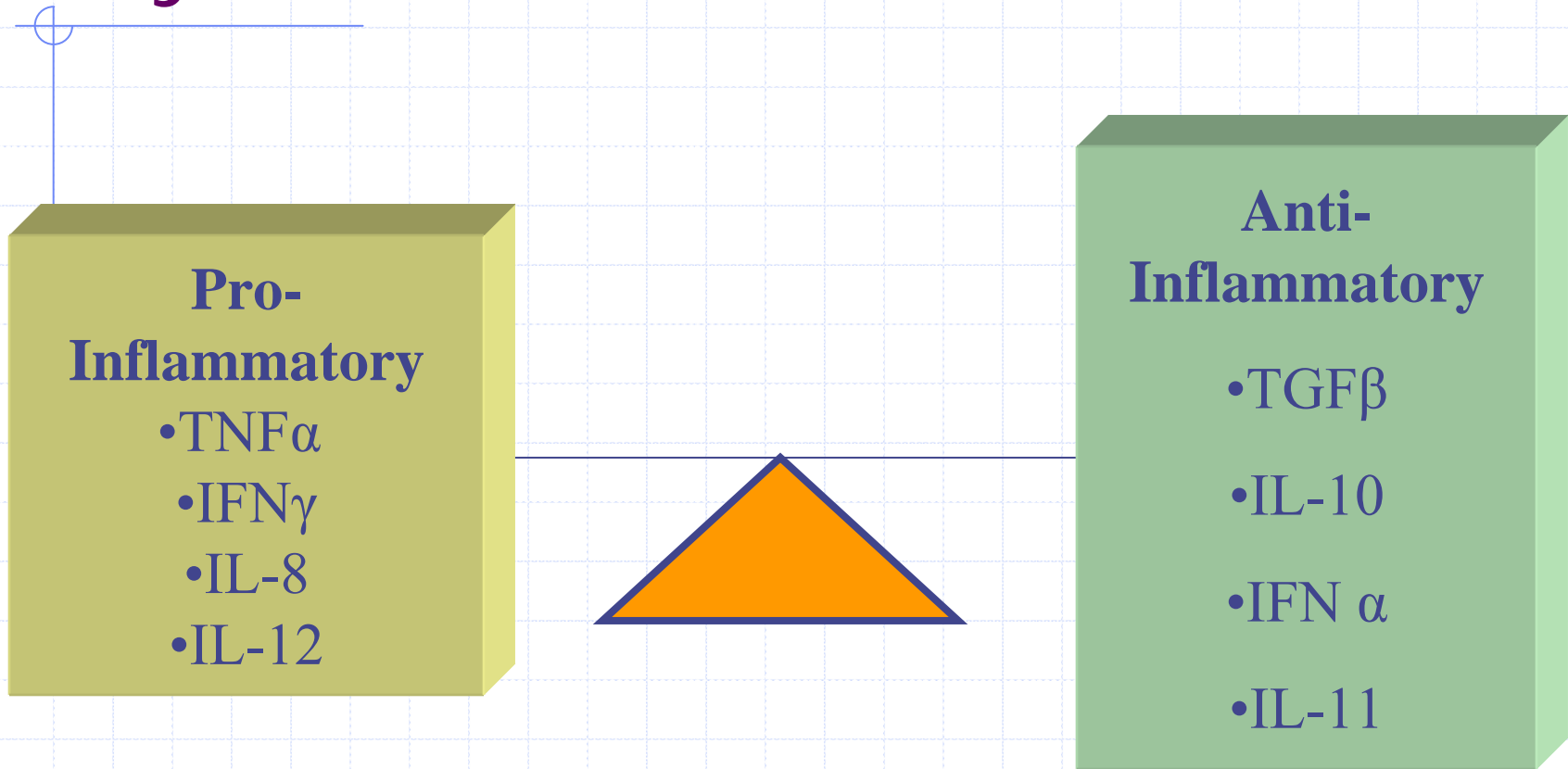
- ◆ 70% of IBS patients have pain at lower volume and pressures when a balloon is inflated in the bowel
- ◆ Diarrhoea-predominant patients have the lowest thresholds

Is there evidence that central neurotransmitter function is altered in IBS?

Inflammatory markers in IBS

Are plasma cytokine levels altered?

Cytokine Balance

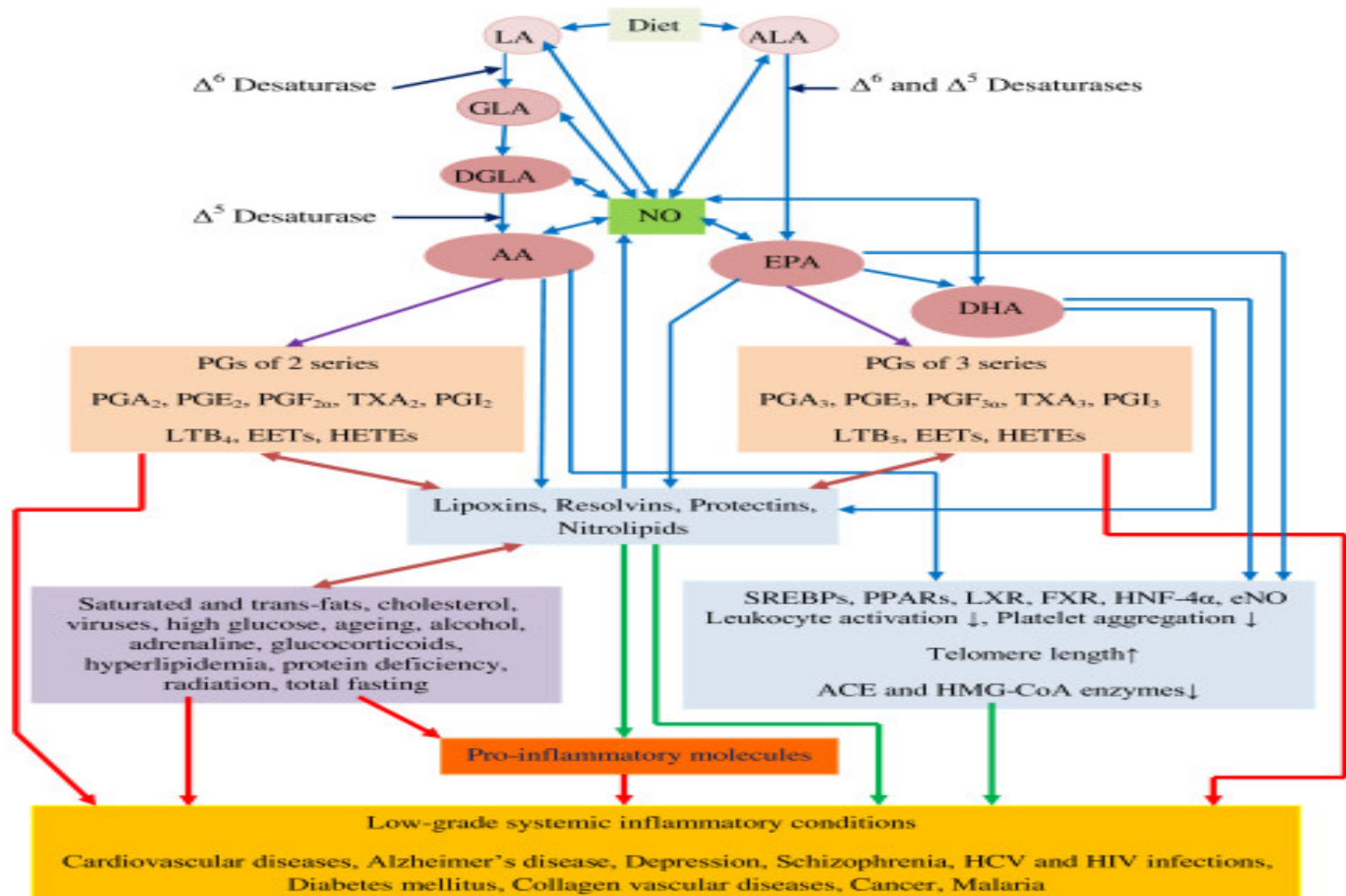


Mucosal inflammation in IBS

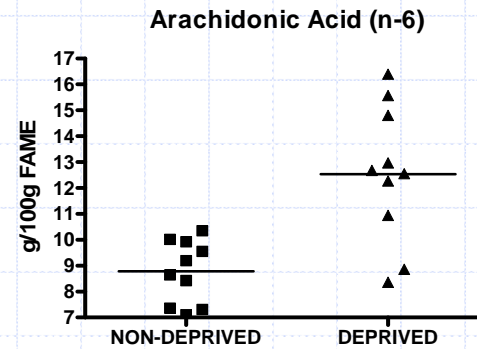
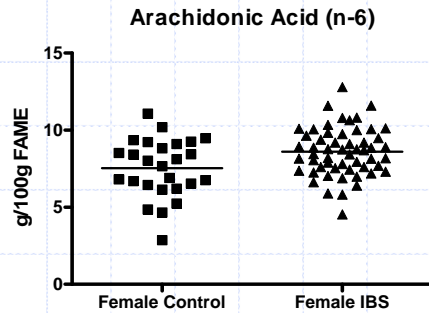
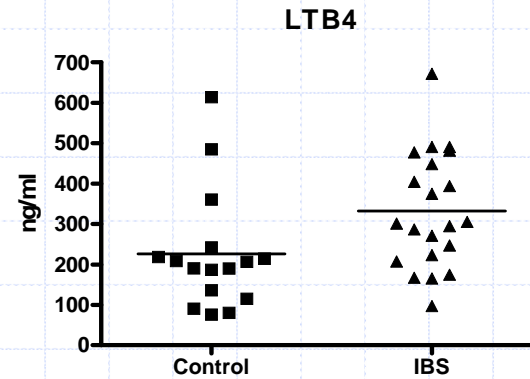
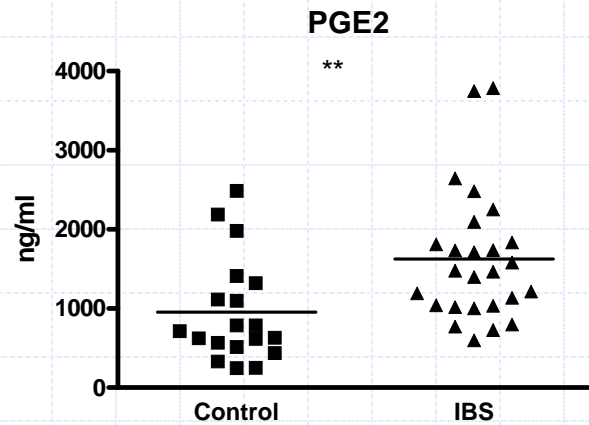
- ◆ Most patients show evidence of immune activation (\uparrow intraepithelial lymphocytes/ \uparrow CD³⁺ and CD²⁵⁺ cells) (Chadwick et al 2002)
- ◆ Patients with severe IBS were found to have low grade infiltration of lymphocytes in the myenteric plexus (Tomblom et al, 2002)

Hypothalamic-pituitary-adrenal axis dysregulation in IBS

Polyunsaturated Fatty Acids in IBS



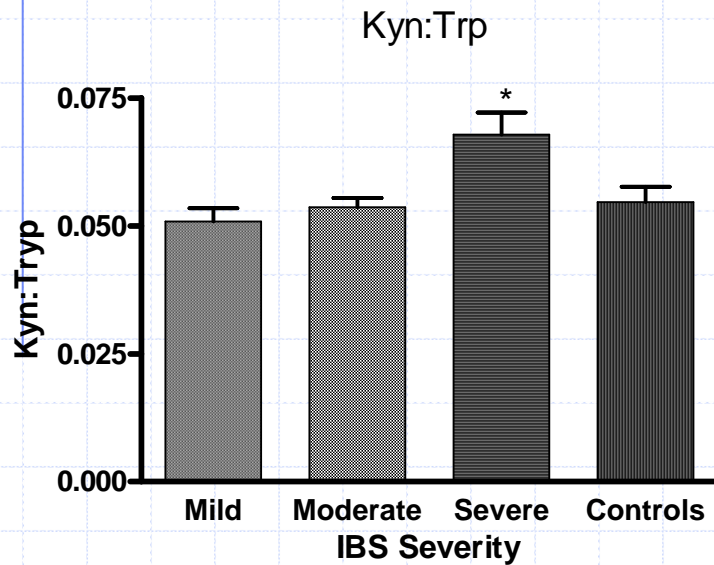
Essential fatty acids in IBS



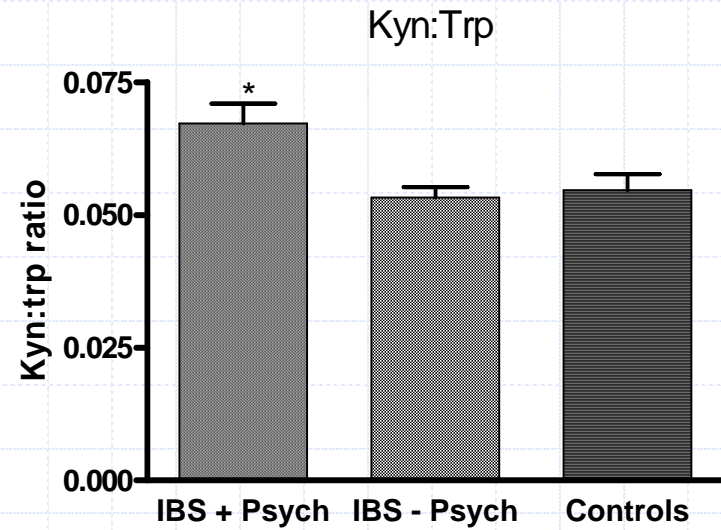


How is brain serotonin altered in IBS?

Tryptophan metabolism in IBS



*F=5.02, p=0.0036



*F = 5.6, p=0.005

Fitzgerald et al, 2008

Microbiota Immune Endocrine Interactions

