

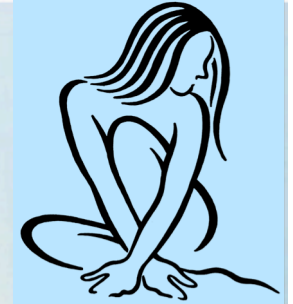
Gluten and Coeliac Disease

Dian Shepperson Mills

The Endometriosis and Fertility
Clinic

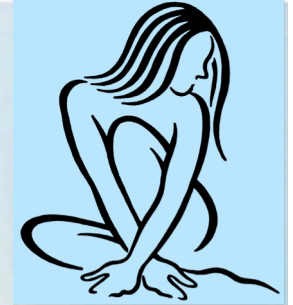
February 2011

Coeliac Disease



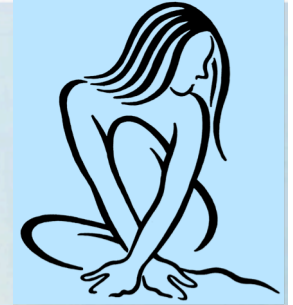
- Ataxia, Epilepsy, Migraines, Osteoporosis, Depression, Dermatitis herpetiformis, Diabetes (Type 1), Infertility, Auto-immune diseases
Thyroid disease, Sjorgen's syndrome, Addisons disease, Autoimmune liver disease, Cardiomyopathy, Alopecia areata, Lupus, Rheumatoid arthritis, Fibromyalgia, Aphthous stomatitis, Multiple sclerosis, ADHD, Autism spectrum disorder, Raynaud's syndrome, Chronic fatigue syndrome, Lactose intolerance, Irritable bowel syndrome, Anaemia
- Murray JA. The widening spectrum of celiac disease. Am J Clin Nutri. 1999;69:354-365.

Gluten damages the small intestine



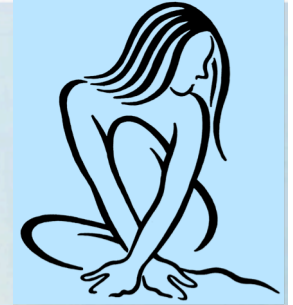
- Gluten is the protein in wheat
- Gluten is the stretchy material which allows bread dough to rise and surrounds the gas bubbles
- Gluten is responsible for Coeliac disease diagnosis
- 1% of the US population (1:100 people are coeliac)

Gluten



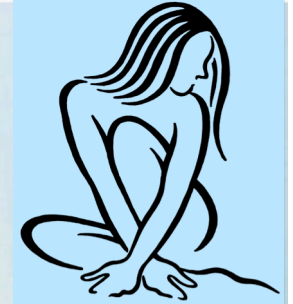
- Gluten damages the small intestine villi
- It eats them away, stunts them
- Villi are tiny finger-like projections inside the small intestine
- Villi increase the surface area for absorption of nutrients
- Less villi means malabsorption of nutrients
- Then the body starts to fall ill, weight loss or bloating may occur

Coeliac Disease Symptoms



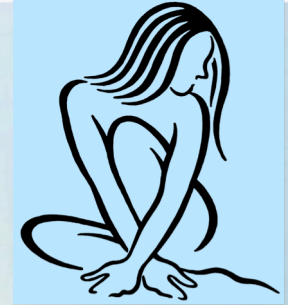
- The most common under-diagnosed hereditary autoimmune condition
- Coeliac disease is a medical condition that can trigger many different illnesses in the body
- Burps, extreme gas, irritable bowel syndrome, abdominal discomfort, bowel cancers, heartburn, diarrhoea, constipation, weight loss, poor growth, foul-smelling stools, malaise, weakness, lactose intolerance are all possible manifestations of the condition

Wheat Farming

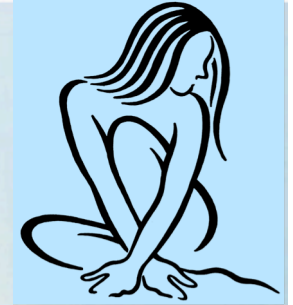


- Humankind has only farmed wheat for 10,000 years
- It is a relatively new food
- In the UK wheat only started to be used widely from the Middle Ages
- Before that Britains ate acorn flour, bullrush flour, lupin flour regularly
- ‘It is suggested that blood type ‘O’ people have more difficulty digesting wheat, we may have a slower adaption to the protein digestion of the wheat’
- ‘The gluten in wheat germ interferes with Type ‘O’ metabolic processes’ states Peter D’Adamo
- D’Adamo PJD. Whitney C. *Eat Right for Your Type*. Putnam 1996. pp63

Incidence



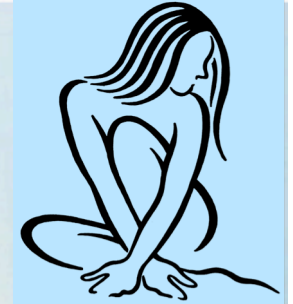
- First peak: Symptoms begin in the first three years of life after cereals are introduced into the diet, bloating, foul stools, stunted growth, ???
- Second peak: begins during the third decade
- Third peak : begins in fifth decade



Gluten Grains

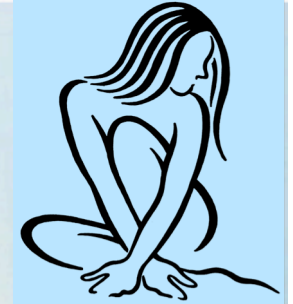
- Grasses - family Gramineae
- Festucoideae sub-family
- Triticeae - Wheat
- Horedins - Barley
- Rye - Secalins
- Aveneae - Oats
- Oryzeae - Rice

Grasses



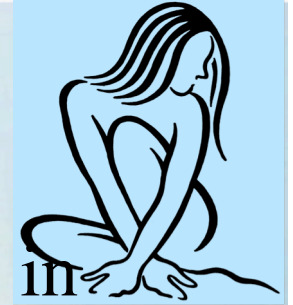
- Sub-Family - Panicoideae - Maize - Millet - Sugar
- Tripsaceae - Maize (corn)
- Paniceae - Millet - Prolamines
- Andropogoneae - Cane sugar
- NON- Grasses
- Buckwheat - Rhubarb family - prolamines
- Prolamines have similar antigenic activity to the alpha-gliadin of wheat
- If you are very sensitive then avoid millet and buckwheat
- Murray M, Pizzorno J. Encyclopaedia of Natural Medicine. Optima. 1990p225.

Gliadins and Glutenins

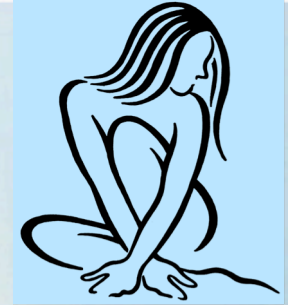


- Gluten in wheat endosperm is composed of gliadin and glutenin.
- The gliadin portion has been demonstrated to activate coeliac disease
- Rye - Secalins }
- Barley -Hordeins } Prolamines
- Oats - Avenins }
- The closer to wheat the greater the ability to activate coeliac disease

Glutens



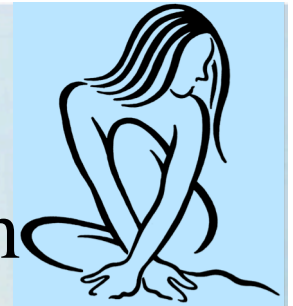
- A storage protein in wheat, stretchy, sticky, sets in heat. There are 18 forms of gluten.
- Wheat - gluten - triticum }
- Rye - secalins }
- Oats - avenins }
- Barley - hordeins } Prolamines
- Spelt - triticum }
- Triticale - triticum }
- Kamut - triticum }
- Malt - saccarum }



Panicoideae

- Corn - zeinins
- Rice - oryza
- Millet - panicum - prolamine
- Buckwheat - prolamines(similar action to gliadin)
- Rice and maize (corn) do not appear to activate coeliac disease, they are further removed from wheat
- Cole SG. Kagnoff MF. 'Coeliac disease'. Ann Rev Nutri. 1985, 5,pp 241-66

Gliadin



Gliadin shares an amino acid sequence with adenovirus type 12, which may predispose to onset of the disease near the time of this infection, but again, a cause and effect has not been proven.

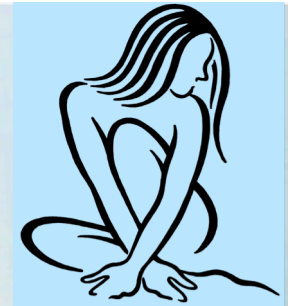
- Kagnoff MF. 1989. Coeliac disease: adenovirus and alpha gliadin. *Curr Top Microbiol Immunol* 145:67-78.

Adenovirus are a group of DNA containing viruses causing infections of the upper respiratory tract, producing symptoms like the common cold

Gliadin is a protein with a single polypeptide chain with high glutamine and proline content

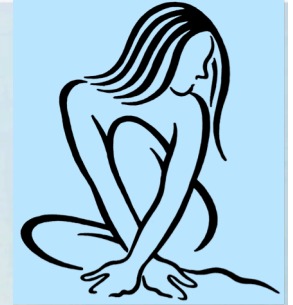
4 electrophoretic factors - alpha-beta-gamma-omega

Gliadins



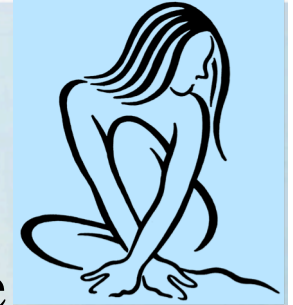
- Alpha-gliadin is the most suspect environmental factor to trigger coeliac disease (beta and gamma are capable of triggering it)
- Omega gliadin does not appear to activate the disease - but has highest glutamine and proline
- Gliadin that has been subjected to complete digestion does not activate coeliac disease in susceptible individuals, suggesting a possible relationship to deficient enzymes involved in protein digestion
- Cole SG. Kagnoff MF. 'Coeliac disease'. Ann Rev Nutri. 1985, 5,pp 241-66

Glutenins



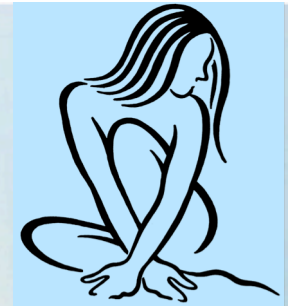
- Glutenins are another group of storage proteins found in gluten
- Glutenins are associated with autoimmune skin diseases and certain types of asthma
- Digestion of these storage proteins require very specific digestive enzymes, which most of us lack
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp26.

Glutenins



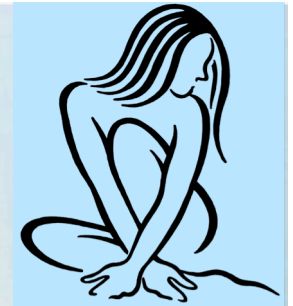
- Glutenin peptides activate T-lymphocyte immune cells in the small intestine in much the same way as gliadin
- Is glutenin also involved in the disease process?
- Glutenin cross reacts with elastin, the principle component with elastic tissues
- Glutenin may lay a role in autoimmune diseases
Glutenin peptides are toxic to cells
- Glutenin antibodies appear to cross-react with rice, placing rice off-limits to some gluten sensitive people.
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp171

Gliadin and Glutenin



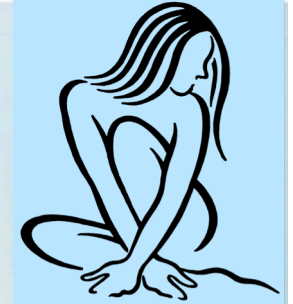
- Gliadin is not the only toxic component of gluten
- Tests that exclusively identify antibodies sensitized to gliadin appear to be inadequate for identifying everyone who is gluten sensitive
- IgG and IgA anti-glutenin immunoassays have been developed

Globulin and Albumin



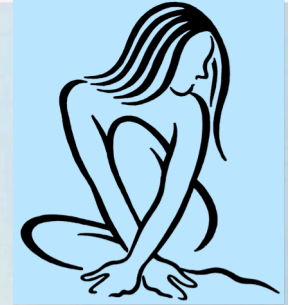
- Research is needed into sensitivity to other gluten peptides to see if they may also be causing problems
- Only further research will show

Lectins



- Lectins contain defensive proteins that specifically bind to carbohydrate markers on cells in the gut wall of coeliacs
- These carbohydrate markers are determined genetically
- The theory is that coeliacs inherit a particular marker molecule on the surface of their cells, which is bound by the lectins in gluten
- This combination of lectin-and-marker looks like an unwelcome alien to the immune system which makes antibodies against it
- Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. p136

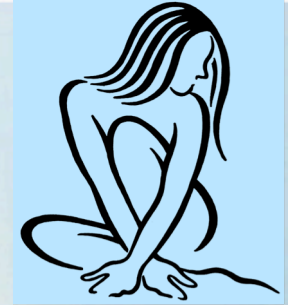
David Lloyd George



Don't be afraid the take a
big step if one is
indicated

You can't jump a chasm in
two small steps

Immune System War



- The relentless war between the immune system antibodies and the bound lectin, causes severe damage to the gut lining, villi are eaten away
- The small intestine then becomes unable to function properly, major malabsorption
- It can be risky for coeliacs to experiment with eating gluten, even if they have avoided it for some years and seem fully recovered
- Acute reactions - COELIAC SHOCK can happen even with the smallest amounts
- Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. p136

Suppression of Immune Function



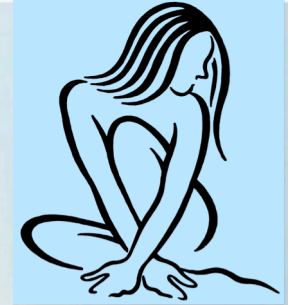
- Alpha-gliadin has demonstrated immune suppressing activity in coeliac patients, but has no effect in healthy controls.
- This may be a result of decreased vitamin and mineral absorption, especially vitamin A and carotenoids
 - O'Farrelly C, Whelan CA, Feighery CP, Weir DG. 'Suppressor-cell activity in coeliac disease induced by alpha-gliadin, a dietary antigen'. *Lancet*, 1984, ii. Pp 1,305-6.
- There is increased risk of malignant cancers seen in coeliac patients
 - Cole SG, Kagnoff MF. 'Coeliac disease'. *Ann Rev Nutri*. 1985, 5, pp 241-66
 - Swinson CM, Slavin G, Coles EC, Booth CC. 'Coeliac disease and malignancy'. *Lancet*, 1983 I, pp111-15.
 - Cooper BT, Holmes KY, Ferguson R, et al, 'Coeliac disease and malignancy', *Medicine* 1980, 59, pp 249-61

Opioid Activity



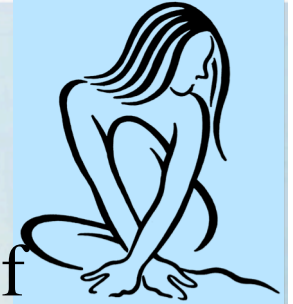
- Wheat gluten components demonstrate an opioid (opium-like) activity
 - Morley JE, Levine A, Yamada T. et al. 'Effect of exorphins on gastrointestinal function , hormonal release and appetite.' Gastroenterol. 1983, 84.pp1,517--23
 - Morley JE. 'Food peptides - a new class of hormones.' JAMA. 1982, 247, pp2,379-80
- There is an association between wheat consumption and schizophrenia
 - Singh MM, Kay SR. 'Wheat gluten as a pathogenic factor in schizophrenia'. Science. 1976. 191. Pp 401-2
 - Dohan FC, GasbergerJC, "Relapsed schizophrenics: earlier discharge from hospital after cereal-free, milk-free diet.' Am J Psychiatry. 1973, 130.pp685-8
 - Dohan FC, Harper EH, Clark MH. Et al, 'Is schizophrenia rare if grain is rare?' Biol Psychiatry. 1984. 19.pp 385-99
- Hypothesis - gluten is a causative factor in the development of schizophrenia
- Substantiated in epidemiological, clinical and experimental studies - ignored in medical circles

Endorphins-Natural Opiates



- Endorphins are natural painkillers
- Released during intense pain or strenuous exercise or stress
- Brain cells have receptors for these molecules
- When endorphins bind to the brain cells feelings of pain are suppressed
- A sense of well-being is then felt
- 4-5 different endorphin receptors having different effects
- Morphine and opiates mimic this natural effect
- Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. p230

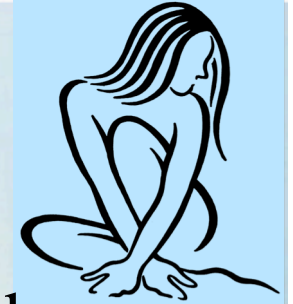
Exorphins



- Endorphins are peptides - (protein) short chains of amino acids
- As food is digested in the small intestine, these amino acids chains break down into shorter lengths - peptides
- Some of these peptides are similar to natural endorphins
- Known as Exorphins
- Exogenous morphine-like molecules
- In labs exorphins have been produced from wheat, dairy, maize and barley using human digestive enzymes
- Exorphins bind to natural receptors for endorphins

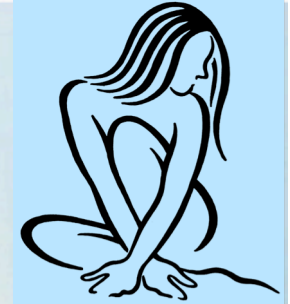
• ©The Endometriosis and Fertility Clinic
• Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. p230

Exorphins



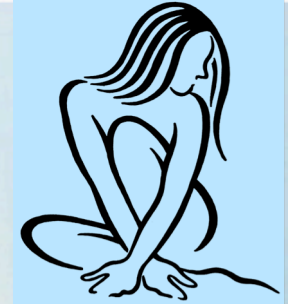
- They have to breach the gut wall to get inside the bloodstream
- If the gut is leaky due to candida albicans overgrowth or coeliac disease at the brush border gut membrane they may reach the blood
- Protein digesting enzymes from the liver could break them up
- Endorphins have a structure at one end which stops enzymes attacking them, but exorphins do not
- The question is do exorphins have an effect in the body. Do they affect mood?
- Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. p230

Exorphins and Mood



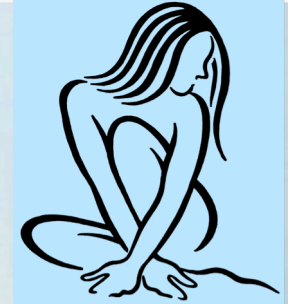
- Foods can induce a sense of well being
- Psychological impacts of gluten-derived exorphins
- People crave chocolate, sugar, bread
- Food intolerant people often crave the food which does them the most harm
- Food also contains peptides which might have other effects on the body
- Susceptible people may be deficient in enzymes and become vulnerable to exorphins
- Brostoff J, Gamlin L. The Complete Guide to Food Allergy and Intolerance. Bloomsbury. 1989. P230
- Or they could be highly resistant to enzyme digestion in the intestine

Excessive Tiredness



- A person may feel exhausted, but rest and sleep do not restore feelings of well-being
- Chronic fatigue syndrome, post-viral syndrome, food intolerance, immune system reaction
- Exorphins may play a part

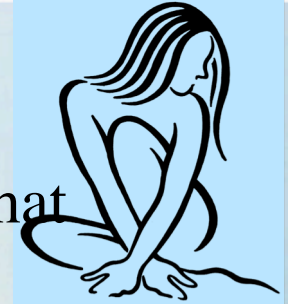
Gluten Opioids



- Five distinct opioids are contained in gluten
- A4 - A5 - B4 - B5 - C
- They are found repeatedly in the structure of single proteins
- Gluten exorphin A5 occurs at 15 sites in a single glutenin protein
- Exorphins are less potent and variable in their strength
- 0.5mg of the most active exorphin is equal to 1nM of morphine
- Exorphins may be the determining feature of “comfort foods”

- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp109

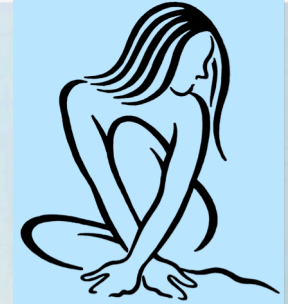
Exorphins and Cancers



Immune system has the ability to destroy damaged cells that have the potential to turn cancerous

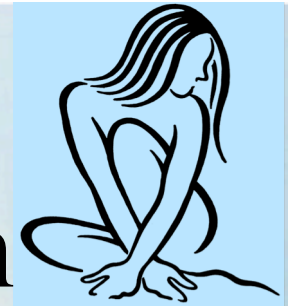
- Exorphins interfere with this defense mechanism
- NK cells are the body's first line of defense
- They act to identify and destroy cells with altered chromosomes - cells that can turn cancerous
- Altered spleen function, altered T-cell function is seen
- Opiated and opioids have been shown to interfere with the action of natural killer cells
- Exorphins inhibit our ability to ward off cancer, they deregulate NK cells
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp110
- The time to assert full recovery is 3-5 years
- Coeliacs experience a declining risk of malignancy on a gluten-free diet

Exorphins and NK cells



- First way exorphins act to deregulate NK cells:
- Abolishing the protective function of NK cells and the opioid receptors on cells that function against cancer
- This interference occurs within 30 minutes of exposing blood from coeliac patients to proteins from gluten
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp110

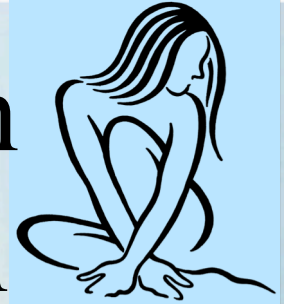
Exorphins: Brain Connection



- Second way exorphins interfere with the immune system:
- Exorphins act indirectly through an area of the brain which activates the NK cells
- The hypothalamic-pituitary- adrenal axis
- Controls the activation of NK cells
- Gluten and it's fractions interfere with the immune system protective function in both ways
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp110

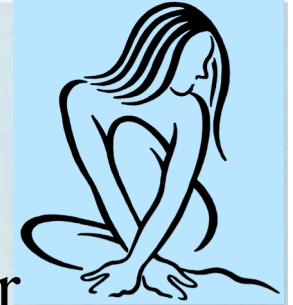
Coeliac disease and addiction

Food allergy- Food addiction



- Exorphins are biochemically similar to heroin, cocaine, morphine
- Undiagnosed coeliacs and addicts have similar ways
- Addicts experience powerful cravings, abnormal food cravings are commonly observed in gluten-sensitive and food allergy sufferers
- Pulmonary bleeding has also been reported in both coeliac disease and addiction
- Lung abscesses and cavities have been reported in coeliac disease and opiate addiction
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp110

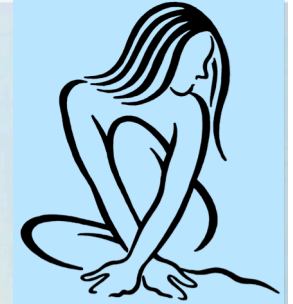
Chromosome Damage



- Both coeliac and addicts have substantially higher rates of chromosome damage than the general population
- Both groups may be slow at repairing cellular DNA, a key element in the development of cancer
- Enlarged gastrointestinal lymph nodes, often misdiagnosed as lymphoma
- Coeliac disease is a pre-malignant condition
- Coeliac associated conditions resolve on a gluten free diet
- Those who go untreated have a dramatic rate of developing cancers

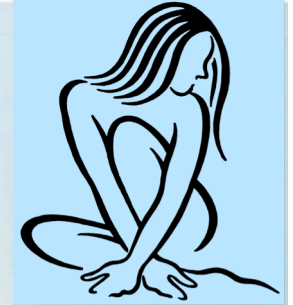
• Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp111

World wide undiagnosed problem



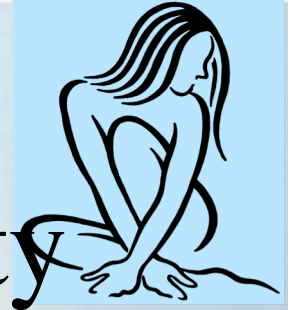
- Finland 1:99
- Common in Europe, especially Nordic countries,
- South America, Canada, Australia, Sahara desert peoples
- UK 1:100 adults, 1:60 children
- 97 per cent go undiagnosed
- Delay in diagnosis leads to autoimmune diseases

Diagnosis



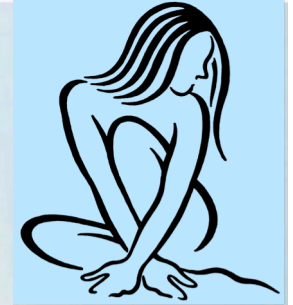
- In the USA the average time to diagnosis of coeliac disease is currently 9 years
- 8 years too long
- For a child it may be 1/3 to 1/2 of their lifetime
- “Silent” coeliac disease
- Parents have often been told children with ‘grow out of it’.
- **YOU DO NOT GROW OUT OF COELIAC**
- Masked or mistaken by medical profession

Non-Coeliac Gluten Sensitivity



- 20 per cent of the American population
- A non-specific injury to the intestinal membrane
- Leaky gut membrane
- Increased levels of intestinal immune cells (as found in untreated coeliacs)
- Elevated antibodies against gluten
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc. pp40-41

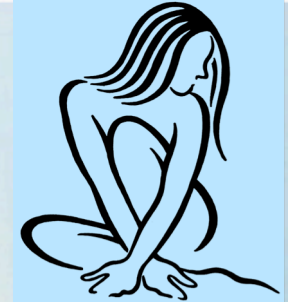
Onset of injury



- Environmental factors may influence the timing of the onset of injury as well as the severity of symptoms
- The avoidance of wheat exposure in early infancy has been proposed as a protective factor
- Breast feeding infants have a delayed initiation of this intolerance compared to formula-fed infants

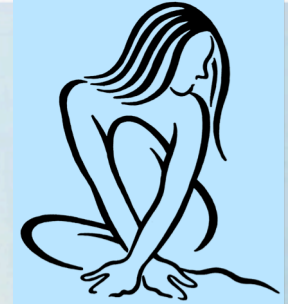
Auricchio S. Follo D. DeRitis G. (1983) Does breast feeding protect against development of clinical symptoms of coeliac disease in childhood.? J paediatric gastroenterol Nutri 2;428-433

Breast feeding



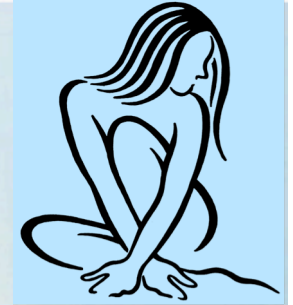
- Breastfeeding appears to have a preventive effect as breast fed babies have a decreased risk of developing coeliac disease
- Auricchio S, 'Gluten-sensitive enteropathy and infant nutrition'. J Ped Gastroenterol Nutri, 1983, 2 (Supple 1). Pp. S304-9
- Auricchio S. Follo D, deRitis G. et al.'Does breast feeding protect against the development of clinical symptoms of coeliac disease in children'. J Ped Gastroenterol Nutri, 1983. 2. Pp428-35.
- Cole SG. Kagnoff MF. 'Coeliac disease'. Ann Rev Nutri. 1985, 5,pp 241-66
- The early introduction of cow's milk is also believed to be a major causative factor
- Auricchio S, 'Gluten-sensitive enteropathy and infant nutrition'. J Ped Gastroenterol Nutri, 1983, 2 (Supple 1). Pp. S304-9
- Auricchio S. Follo D, deRitis G. et al.'Does breast feeding protect against the development of clinical symptoms of coeliac disease in children'. J Ped Gastroenterol Nutri, 1983. 2. Pp428-35.
- Cole SG. Kagnoff MF. 'Coeliac disease'. Ann Rev Nutri. 1985, 5,pp 241-66
- Fallstrom SP. Winberg J, Anderson HJ. 'Cow's milk malabsorption as a precursor of gluten intolerance.' Acta Paediatrics Scand. 1965. 54.pp101-15
- Research in the past few years has clearly indicated that breastfeeding , along with delayed administration of cow's milk and cereal grains, are primary preventive steps that can greatly reduce the risk of developing coeliac disease.

Susceptible individuals



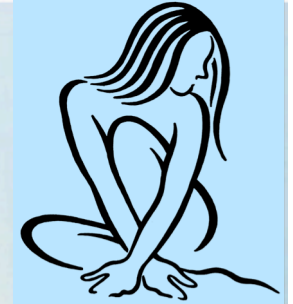
- In order to get coeliac disease you have to have the specific genes
- 70 per cent of identical twins (after 1 is diagnosed) have coeliac disease
- 10 per cent of 1st-degree relatives are found to be coeliac (mum, dad, siblings)
- If someone in your family is diagnosed you must insist that they check everyone

Increased Morbidity Rate



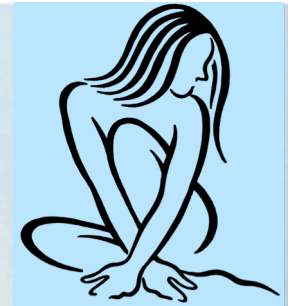
- There is an increased morbidity rate for people with coeliac disease
- Research shows a statistical risk:
- 33 times greater for small intestinal adenocarcinoma
- 11.6 times greater for oesophageal cancer
- 9.1 times more for non-Hodgkin's lymphoma
- 5 times greater for melanoma
- 23 times greater for papillary thyroid cancer

Lactose Intolerance

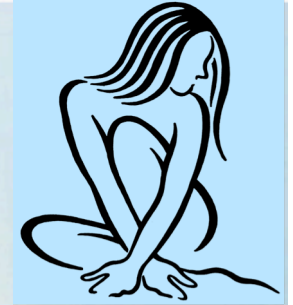


- Initially you may have to eliminate all sources of lactose / dairy foods as damage to the villi may trigger lactose intolerance
- Once the gluten is removed and the gut membrane begins to heal the lactose intolerance usually goes away and dairy foods may be re-introduced

Standard UK Diet



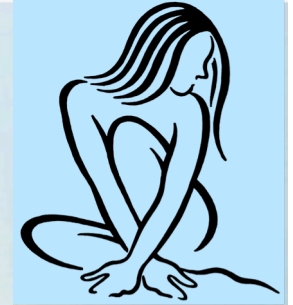
- Breakfast - wheat-based cereal, toast and jam
- Lunch - Sandwiches and chocolate covered biscuits
- Dinner - Pasta or pizza, salad, pudding
- Snacks - cakes, biscuits, chocolate
- A lot of wheat is eaten each day



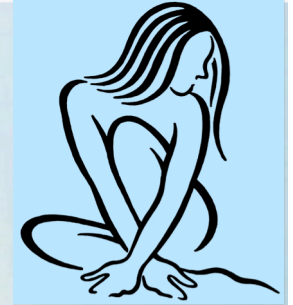
Exclusion Diet

- Clinical improvement will be apparent within a few days or weeks
- 30 per cent respond within 3 days
- 50 per cent within 1 month
- 10 per cent within 2 months
- 10 per cent of patients only respond after 24-36 months of gluten avoidance
- Krause MV. Mahan KL. *Food, Nutrition and Diet Therapy*. 7th Ed. WB. Saunders. Philadelphia, PA 1984, pp452-7

New Diet



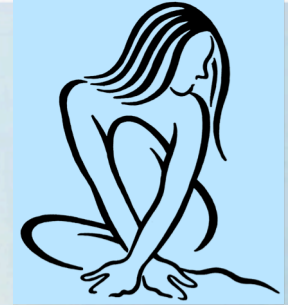
- Breakfast - Fruit smoothie
- Lunch - Vegetable soup & Chicken salad
- Dinner - Fresh salmon salad, Lemon sorbet
- Snacks - nuts and seeds
- Use of wheat/gluten free foods available in most supermarkets



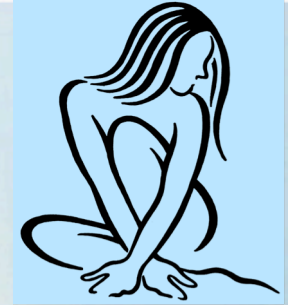
Non responders

- ? Incorrect diagnosis
- ? Patient is not adhering to the diet
- ? Patient is being exposed to hidden sources of gliadin
- ? Associated disease or complication, e.g. zinc deficiency
- Coeliac disease will be unresponsive to dietary therapy if zinc deficiency is present
- Cole SG, Kagnoff MF. 'Coeliac disease'. *Ann Rev Nutri.* 1985, 5, pp 241-66
- Love AHC, Elmers M, Golden m et al, 'Zinc deficiency and coeliac disease'. In McNicholl, B, McCarthy CF and Fotrell PF (eds) *Perspectives in Coeliac Disease.* Baltimore University Press, Baltimore MD. 1978. PP335-42

Genetic Weak Links

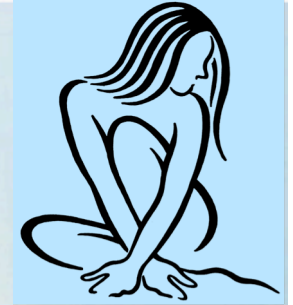


- Coeliac disease is found in Celtic peoples, Nordic peoples and Ashkanazi Jews
- It is hereditary
- HLA Human Leutocyte Antigens are proteins found on the surface of almost every cell in the body
- They patrol the immune system like sentries
- They identify self and non-self invaders
- HLA classII DQ genes
- HLA-DQ2 and HLA-DQ8 are active in coeliac disease



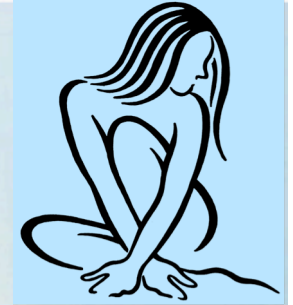
HLA-DQ2

- 95 per cent of people with coeliac disease have HLA-DQ2
- They are molecules on cells that are encoded by specific alleles of genes
- HLA-DQ2 alleles (different forms of a given gene)
- DQA1*05
- DQB1*02



HLA-DQ8

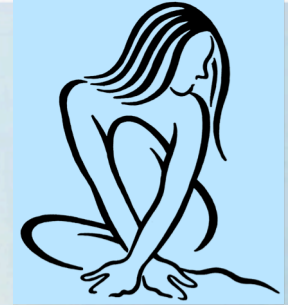
- 5 per cent of people with coeliac disease have HLA-DQ8
- HLA-DQ8 encoded by alleles
- DQB1*0302
- DQA1*03



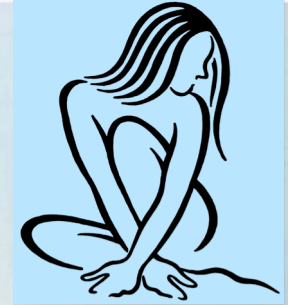
HLA antigens

- These play a role in development of genetically predisposed diseases
- e.g. Diabetes, Coeliac disease
- All people have a slightly different version of these HLA proteins
- We all have 2 sets, 1 from mum and 1 from dad
- HLA antigens are used to show organ compatibility in transplants
- HLA genes predispose people to auto-immune diseases

Proteins on Lymphocytes



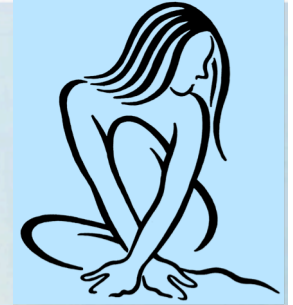
- The proteins on the surface of each lymphocyte is shaped with a groove which interacts with and binds to Gliadin
- Lymphocytes with HLA sentries are primed to react to gliadin
- It is the gliadin part of the protein gluten which gets into the mucosal lining of the intestine and does the damage in susceptible individuals
- Gliadin is the alcohol-soluble part of gluten



See your GP

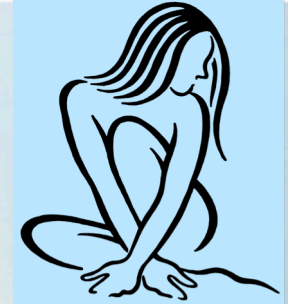
- This lecture is meant to highlight the various manifestations of coeliac disease and gluten sensitivity
- It is not meant to be self-diagnosis
- If you suspect you have a problem with wheat and gluten then see your GP and ask for the tests
- Read everything on research
- www.celiaccenter.org
- www.bidmc.harvard.edu
- www.celiacdiseasecenter.columbia.edu

Delay in Diagnosis



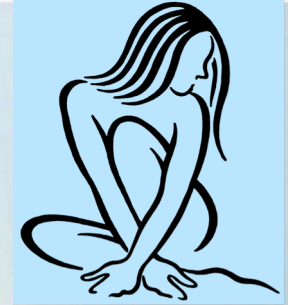
- Increases the chances of developing associated auto-immune diseases
- 2.1 million people have Type 1 diabetes in the USA, 8-10 per cent also have coeliac disease

Autoimmune diseases



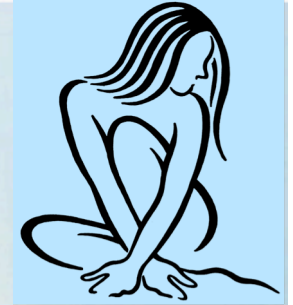
- Affect 3 per cent of the general population
- Affect 30 per cent of those with coeliac disease
- 30 per cent of patients are diagnosed after the age of 20 years, after prolonged exposure to gluten - they develop one autoimmune disease on average
- Women are 3:1 times more likely to develop an autoimmune disease

Infertility



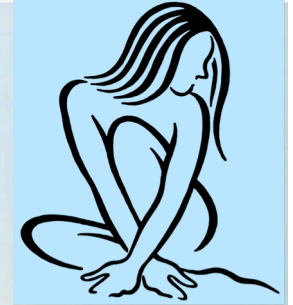
- 6 million men and women in the USA (10 per cent) are infertile
- “Unexplained infertility” in 20 per cent
- Endometriosis in 40-60 per cent women
- PCOS, tubal irregularities, low sperm count
- Males - reduced sperm count
- Females - shorter reproductive periods, premature menopause

Osteoporosis



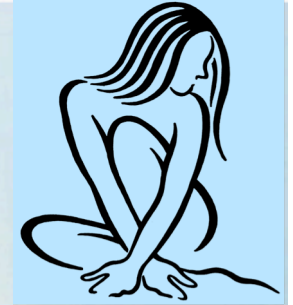
- 75 per cent of newly diagnosed patients with coeliac disease have a degree of bone loss, osteopaenia
- Phytic acid in wheat locks up calcium, magnesium, zinc and iron so that it cannot be utilised by the body
- Diarrhoea in coeliac patients triggers vitamin D malabsorption
- Fosomax and Actonel given for osteoporosis can damage the gut membrane even more in undiagnosed coeliacs

Diabetes



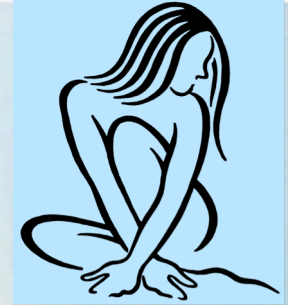
- 8-10 per cent of patients with Diabetes Type 1 will develop coeliac disease
- The link has been known for 40 years
- Both are associated with HLA-DQ2 and HLA-DQ8 gene halotypes
- Children with recently diagnosed coeliac disease had a higher prevalence of anti-islet cell and anti-insulin antibodies than non-coeliacs
- After going onto a gluten -free diet these antibodies stop being produced

Cardiomyopathy

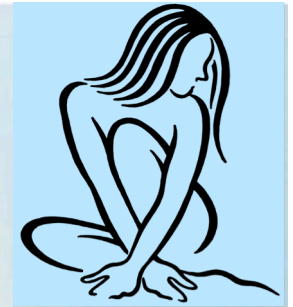


- An inflammatory condition of the heart muscle
- 3 types - dilated, hypertrophic, restrictive
- In coeliac disease it is the common form - dilated (congestive) cardiomyopathy
- The heart muscle becomes inflamed and weakens, the heart enlarged
- Arrhythmias, disturbances in the heart's electrical conduction are seen
- The autoimmune reaction against the heart is directed against transglutaminase (tTG) present in the heart
- A gluten-free diet has been shown to improve cardiac function

Fibromyalgia

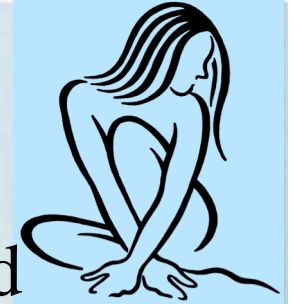


- Coeliac disease group survey showed that
- 9 per cent were diagnosed with fibromyalgia
- 30 per cent with IBS
- fatigue
- muscle and joint pain
- GI symptoms
- non-cardiac chest pains
- Test for coeliac disease



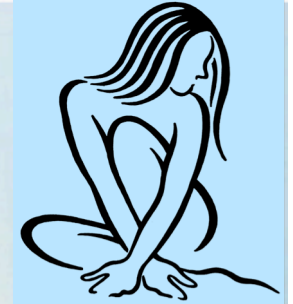
Coeliac disease is a lifelong illness

Lifelong Treatment



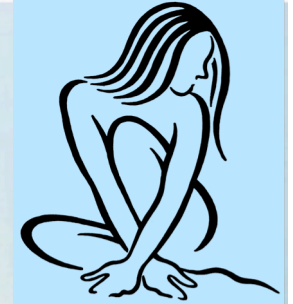
- Permanent withdrawal from the diet of all foods and drugs containing even minute amounts of gluten
- Compliance with the diet is crucial for long term health
 - McNeish AS. Harms HK. Rey J. (1979) The diagnosis of coeliac disease: a commentary on the current practice of members of the European Society for Paediatric Gastroenterol Nutri. (ESPGAN). Arch Dis Child 54:783-786
- Wheat flour is used as a cheap extender in many foods you would not suspect wheat to be in - yoghurts, corn tacos, mashed potato, flavoured crisps, licorice, chocolates, icecreams, gravy browning, wine gums, many drugs and sweets
- Patients must received detailed counseling about wheat, gluten and all the other terms it is labeled under
- Nutritional deficiencies must be addressed using supplementation

1987 - 2011



- “But there’s nothing in here I can eat any more”
- Free From
- Crimbles
- Tru-free
- Wheatanddairyfree.com
- Now there is much more choice
- Just beware the amounts of food additives, trans fats and refined sugars or corn syrup

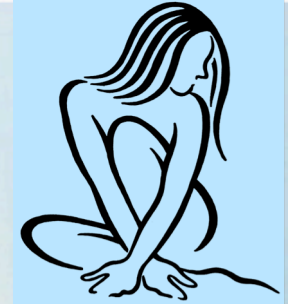
Food Glorious Food



Fish - white - oily - shell

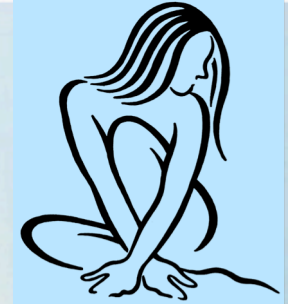
- Meats - red - poultry - game
- Eggs - hens - ducks - quail
- Fruits - citrus - berries - hard - soft
- Vegetables - root - red - green leafy -
- Pulses - peas - beans - lentils
- Gourds - pumpkin, acorn squash, peanut squash
- Nuts and seeds
- Non-gluten grains - rice, corn, millet, buckwheat, quinoa,
- Tubers - tapioca - arrowroot

Names for wheat



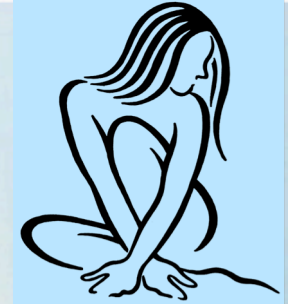
- Modified starch, dextrins, maltodextrins, wheat flour, rusk, bran, semolina, cous-cous, soy sauce, lager, beer, starch, modified starch, gelatinised starch, wheat, wheat germ oil, wheat germ, wheat glucose syrup, Seitan (gluten meat substitute), sausages containing rusk, some lemonades, thickening, cereal filler, dried wheat gluten, hydrolysed plant and vegetable protein, mono-sodium-glutamate, textured vegetable protein, malt vinegar, baking powder, some gravy brownings,

Edible non-gluten grains



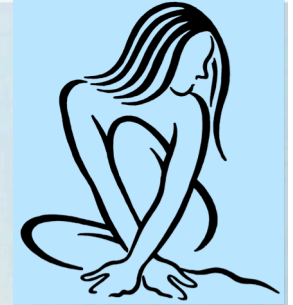
- Brown and white rice, ricecakes, rice noodles, rice pasta, tamari sauce
- Corn tortilla and corn taco, corn pasta, polenta, corn crispbreads, cornflour to thicken sauces
- Lentil and chick pea flours, popadoms, lentil pasta, Bombay mix, Del 'Ugo fresh Chickpea pasta
- Genius bread - rice, potato, tapioca
- Antoinette Saville Rice & Corn bread
- G Free Ltd. Rice and quinoa bread
- Doves Farm Gluten Free Bread and Self-raising Flour
- Village Bakery Rye with coriander and seeds breads
- Food-for-Life wheat and gluten free rice bread
- www.food-for-life.com
- www.wheatanddairyfree.com
- Chestnut, banana flours, Chufa/tiger root tuber, arrowroot, quinoa

Meal Ideas- Breakfast

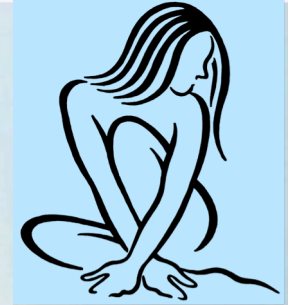


- Scrambled eggs and grilled/baked tomatoes
- Corn Crackers and hummous
- Millet porridge and berries
- Potato cakes and WF baked beans
- Goats yoghurt with stewed berries
- WF bread and bacon
- Buckwheat crackers and nut butters
- Fruit smoothies
- Banana and yoghurt icecream

Main Meal Ideas



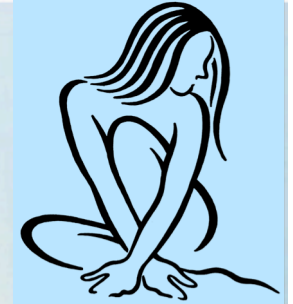
- Corn tacos, hummous, crudites
- Tuna and avocado salad
- Leek and mango risotto
- Chickpea and spinach curry
- Almond and chestnut loaf
- Bean and vegetable casserole
- Jacket potatoes and various fillings
- Vegetable soups
- Steamed or grilled fish with rice and vegetables
- Rice salad with avocado, banana, spring onions
- Tuna and sweetcorn flan with Waldorf salad



High Teas

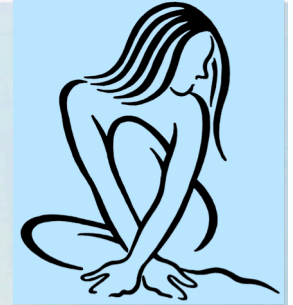
- Avocado and egg pate on WF toast
- Spanish Omelete - Frittata
- Poached salmon salad
- Chicken in curry yoghurt sauce
- Mushroom and chestnut pate and crackers
- Baba Ganouch and rosti potatoes, vegetables
- Discovery Corn Tortillas and salad fillings
- WF sausages and grilled tomatoes
- Tuna pate and rice cakes and celery

Snacks



- Nuts
- Sunflower and pumpkin seeds
- Date and fig bars
- Raisins and sultanas
- Savoury popcorn
- Popadoms
- Prawn crackers

Happiness

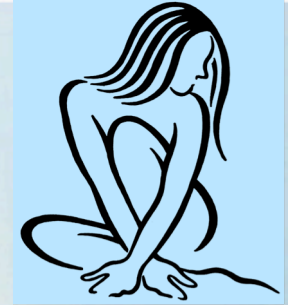


is a good bank account, a good
cook, and a good digestion

Jean-Jaques Rousseau

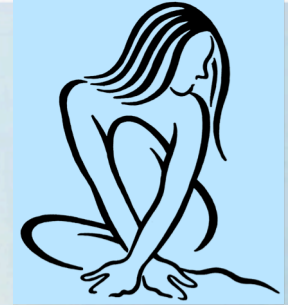
Philosopher

Recipes



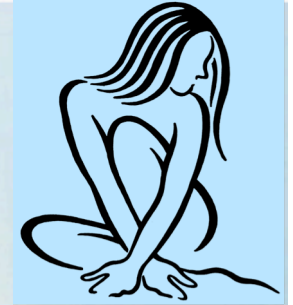
- Pastry
- 3 oz ground almonds+3oz brown rice flour+3oz butter. Mash together, press into flan dish. Fill with tuna, sweetcorn, beaten egg and herbs
- Pizza
- Mashed potato and cornmeal as base
- Breton Pancakes
- 1/2 cup cornmeal+1/2 cup buckwheat+1 beaten egg+ 1 1/2 cups soya milk

Gluten Free Drugs



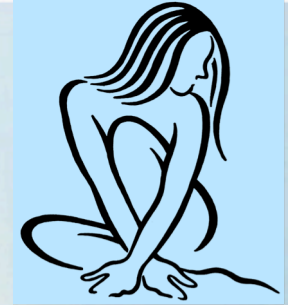
- Antibiotics
- Oral contraceptive pills
- NSAIDS
- Always ask the pharmacist to check your pharma drugs are wheat/gluten free, dextrans, maltodextrans, modified starch, gelatinised starch etc.
- Neither doctors nor pharmacists are trained about excipients in pharma drugs so you have to know to check for gluten/wheat and lactose
- 1:7 people in hospital are in because of a bad reaction to a drug they have been given

Finally



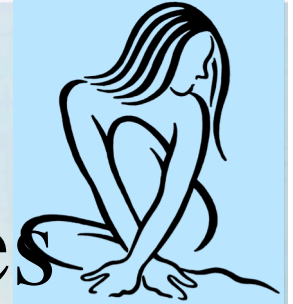
- If the tests are all negative but you feel much better on a wheat exclusion diet then the choice is yours
- To eat wheat and not feel 100% well
- To avoid wheat and feel well
- The other grains rye, oats, barley, spelt, kamut, triticale, they still contain gluten, but at lower levels

Remember

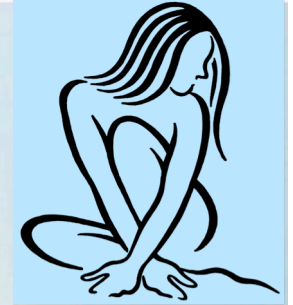


- Variety is the spice of life
- Moderation in all things

Alternate carbohydrate sources

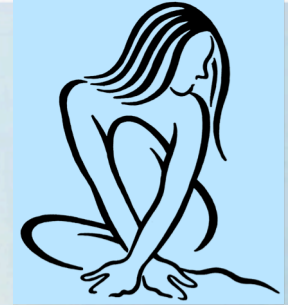


- Corn, rice, millet, quinoa, buckwheat, tapioca, arrowroot
- You may include these in your diet as you wish
- If gluten sensitive -tapioca, arrowroot, banana, chestnut flours
- Root vegetables - potato, sweet potato, yams, carrot, parsnip, celeriac, Jerusalem artichokes
- Pulses - peas, beans, lentils
- Gourds - pumpkin, acorn squash, butternut squash



Phytic acid

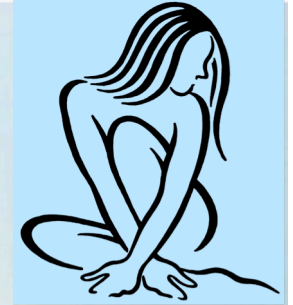
- Phytate is the storage form of most phosphorus found in plants
- It attracts minerals, calcium, magnesium, iron, zinc and bonds form which are resistant to human digestive processes
- Phytates are in the outer layer of cereal grains
- By eating wholegrains we decrease the ability of important dietary minerals crucial to health of bones, hormones, nerves etc.
- Braly J. Hoggan R, Dangerous Grains. 2002 Penguin Putnam Inc pp136



Tests

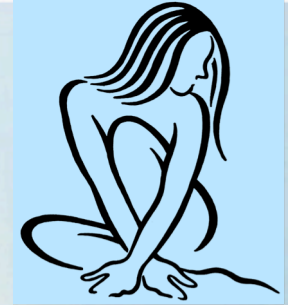
- Gluten challenge
- Sugar absorption test for leaky gut
- Anti-Gliadin Antibody Blood test
- IgG ELISA test
- Endomysium antibody (EMA) test
- Tissue Transglutaminase (tTG) Antibody test
- Finger blood blot USA
- Gold Standard Biopsy
- Genetic testing

Gluten challenge



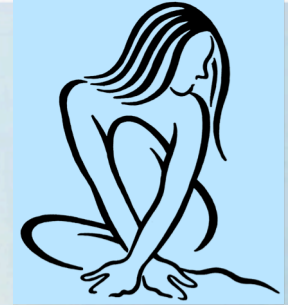
- Stop eating wheat/gluten for 2-4 weeks and then re-introduce
- Watch for symptoms to subside and then re-occur
- If you have been off wheat for a time beware as bad symptoms may reoccur in a drastic way
- Marsh MN. Gluten, major histocompatibility complex, and the small intestine: A molecular and immunologic approach to the spectrum of gluten sensitivity (“coeliac sprue”).
Gastroenterology:1992;102(1);350-354.
- Research suggests eating 4 slices of bread per day for 1 month before taking the test
- Pathologists state that most dead bodies show signs of damaged villi

Sugar- Absorption Test for Leaky Gut



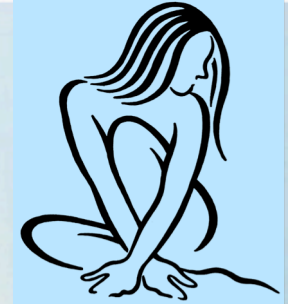
- Does not identify coeliac disease but shows increased intestinal permeability
- After swallowing measured amounts of sugars - lactulose and mannitol - insignificant quantities of them should be absorbed into the blood stream
- If there is inappropriate leaking into the urine unchanged, this indicates a leaky gut and more likelihood of a gliadin fragment getting into the blood stream and gut damage being present

Anti-Gliadin Antibody (AGA) Blood Test



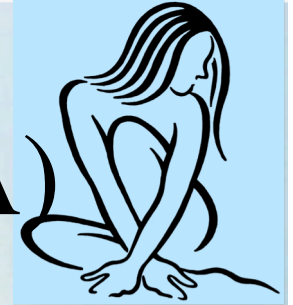
- When gluten is placed in a petri dish with tissue from human internal organs gluten damages the tissue
- Blood test looking for anti-gliadin antibodies can show if we are reacting to IgG and IgA antibodies
- Elevated levels of gliadin antibodies are found in people with many ailments
- IgG antibodies is the largest group on antibodies found in the body their presence when high indicates food allergy and toxic liver overload
- Doctors may be skeptical about the tests

IgA Anti-bodies



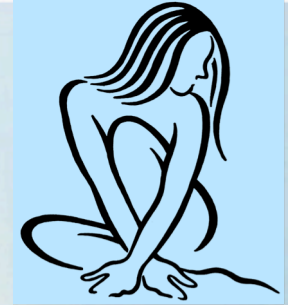
- Much shorter lived
- Useful to monitor compliance
- Useful with IgG to identify those who may need a biopsy and test for endomysium antibodies

Endomysium Antibody (EMA) Testing



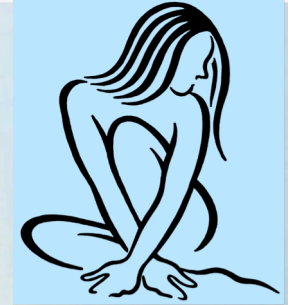
- Endomysium is connective tissue sheathing some muscle fibre
- Endomysium antibodies are present in 90 per cent of coeliacs who are consuming gluten and have flat intestinal walls
- They disappear rapidly after exclusion of gluten
- They can show if a person with coeliac disease is following a gluten-free diet
- In the USA it shows that 1% of the population tests at random have coeliac disease

Tissue Transglutaminase (tTG) Antibody Testing



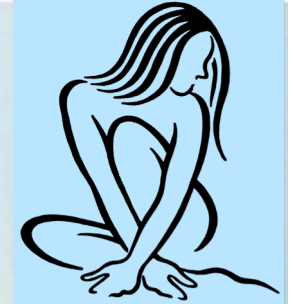
- Transglutaminase is an enzyme that forms part of the endomysium involved in tissue repair
- Anti-endomysium antibodies attack this tissue
- tTG tests identify 98% of those with coeliac disease
- In 95% of cases it rules out people without coeliac disease
- It is a good test to identify those who probably have the disease
- But when negative it does not completely rule out gluten sensitivity or coeliac disease

Food Allergies IgE



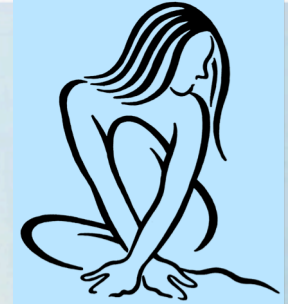
- IgE antibodies circulate throughout the blood stream and trigger the immediate immune response that is called an ‘allergic reaction’
- Coeliac disease is a delayed type of immune reaction - it is not a food allergy
- It is an hereditary disease

Gluten Intolerance



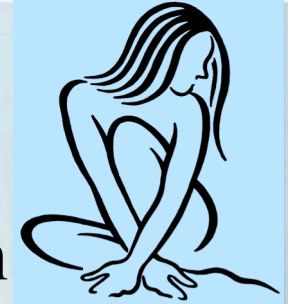
- Often Misconstrued
- Coeliac disease is a sort of gluten intolerance
- But anyone who finds that if they remove gluten from their diet and it relieves their IBS could be said to be gluten intolerant
- The **GOLD STANDARD** diagnosis is an intestinal biopsy
- **Coeliac disease is a serious medical condition that should not be self-diagnosed**
- Involve your doctor, or get a second opinion

Latent Coeliac Disease



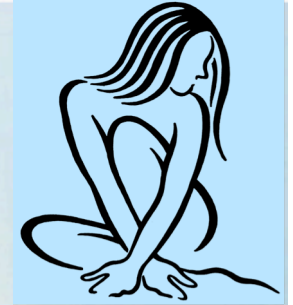
- Negative tests for several months or years that turn positive several months or years later
- Often seen in 1st degree relatives of those diagnosed with coeliac disease, and those with diabetes and thyroiditis
- It may mask wheat sensitivity
- You can still have negative blood tests and yet have coeliac disease with false negative test results
- If you are not ingesting much gluten, antibodies can be negative and you may still have active coeliac disease

Gold Standard Biopsy



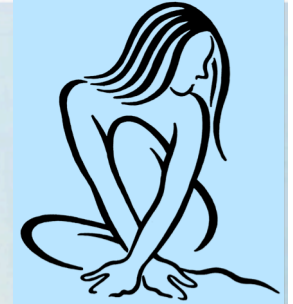
- Endoscopy, a flexible tube/scope is passed down the throat , through the stomach, and into the small intestineA small sample of the intestine membrane is pinched off and brought out of the body to be visulaised under a microscope to determine if the villi are damaged. Gag relexes are stopped with an anaesthetic
- Antibiotics (containing wheat?) could be given before the test. The procedure is painless??
- Flattened villi show HIV, Tropical sprue, giardiasis, coeliac disease
- If you have a skin biopsy for dermatitis herpetiformis you do not need an intestinal biopsy as you already have a confirmed diagnosis

Wheat Sensitivity



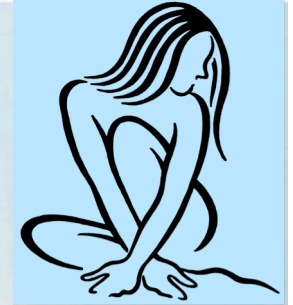
- Gluten
- Phytic acid
- Phyto-oestrogens
- Xeno-oestrogens
- Hormones in genome
- Chemicals in genome
- 70,000 varieties known
- Wheat bran as a good dietary fibre? resistant to digestion It doesn't act like soluble fibre and bind to cholesterol and oestrogens

Finding a Doctor



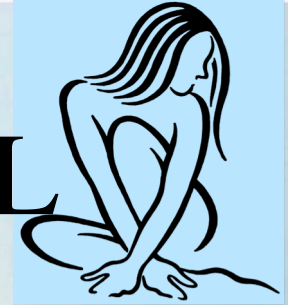
- It is difficult in some areas to find a GP totally knowledgeable about coeliac disease
- Many still think it is rare
- Many do not grasp the many manifestations of the disease and assume it just affects the gut
- Misinformation
- Price of gluten foods
- Lack of awareness in health professionals

What to do after diagnosis?



- Eliminate all gliadin sources
- Avoid dairy food initially
- Correct underlying nutritional deficiencies
- Treat associated conditions
- Eliminate all food allergens
- Test for food intolerances
- Heal the gut membrane

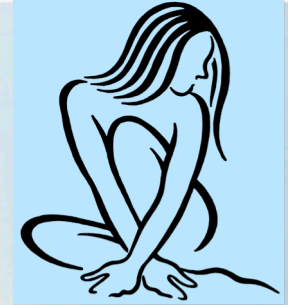
DETERMINATION TO FEEL WELL



IT'S A WHOLE NEW WORLD
AWAITING YOU
GOOD HEALTH
ENERGY
CLARITY

JUST AVOID WHAT IS DOING YOU HARM
IF YOU ARE SUSCEPTIBLE TO GLUTEN
AND/OR WHEAT

Arthur Schopenhauer Philosopher



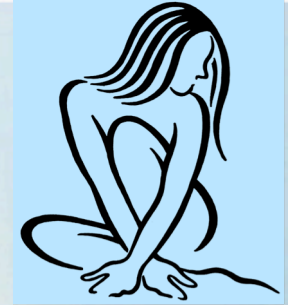
All truth passes through three stages

First, it is ridiculed

Second, it is opposed

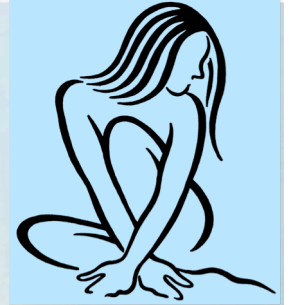
Third, it is accepted as being self-evident

Professor John Crisps



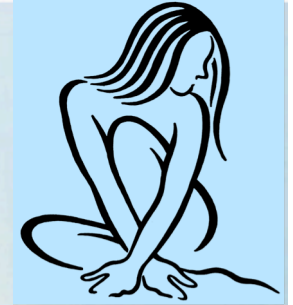
Everything you take for
granted today was once
revolutionary

John Keats



Nothing become real
until experienced
There is no failure
except in ceasing to try

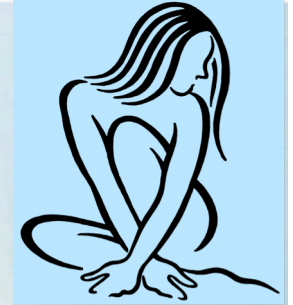
Michael Murray



“It’s crazy not to care about how you treat your body, it’s the only one you are going to get”

There is nothing more precious than your health so protect it in every way that you can to enjoy a healthy old age

Thanks to the Nutri Centre Dian Shepperson Mills



The Endometriosis and Fertility Clinic

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dian@endometriosis.co.uk

Endometriosis: a key to healing and fertility through
nutrition. Thorsons

ION Homestudy Course

Making Baies booklet and DVD