



Coeliac disease: the clinical chameleon

Editorial by Carlo Catassi

The chameleon is a well-known African reptile famous for its ability to change the colour of its skin in order to blend in with its surroundings. In medicine, the term “chameleon-like” is used to describe diseases which can appear in many different forms. Coeliac disease, with its diverse, ever-changing nature, is one such disease.

The typical or classic form of coeliac disease is characterised by chronic diarrhoea, flatulence, unexplained or persistent gastrointestinal symptoms such as nausea or vomiting, is the easiest form to recognise. However, the increasing use of laboratory-based analyses such as anti-transglutaminase antibodies that enable screening of coeliac disease using just a simple blood sample, has revealed many other previously unknown forms of coeliac disease. Atypical or non-classic symptoms resulting from such forms of the disease include a short stature, delayed onset of puberty, hepatitis, anaemia through lack of iron (particularly in cases where patients do not react to oral iron

treatment), chronic fatigue, frequent stomach pain and recurrent aphthous stomatitis. There are also “silent” forms of coeliac disease – cases where persons suffering no apparent symptoms are diagnosed by chance, for example as the result of a screening of family members of a child suffering from coeliac disease.

Could this wide range of forms mean that there are also differences regarding the intensity and complication risks of the disease? Generally, the answer is no. All cases of coeliac disease – typical, atypical or silent – show the same autoimmune changes in the blood (antibodies) and the same type of damage to the intestinal mucosa in biopsies. The complication risk also remains the same since it is known that, for example, untreated silent forms of coeliac disease can cause complications such as osteoporosis, neurological conditions. Therefore, despite the chameleon-like nature of coeliac disease, the dietary treatment should always be the same, i.e. a strictly gluten-free diet. However, it remains to be determined which strategy is the

best for recognising all forms of coeliac disease, including those which are most abstract from a clinical perspective. Until now it had always been assumed that “case finding” was the best solution, i.e. using symptoms or side effects to identify sufferers within groups of persons at risk. Yet, recent data show that this method is only successful in diagnosing 30% of cases, while the remaining 70% remain undiagnosed and therefore continue to expose these sufferers to the risk of complications. It is for this reason that an increasing number of experts are in favour of carrying out a general screening process among the population during childhood. Today, this approach is not only feasible but could in fact be simplified using a “pre-screening filter” based on research into genetic predisposition for coeliac disease. This would make it possible to take blood samples only from those children who show a genetic predisposition for the disease. This innovative diagnostic strategy would finally make it possible to recognise the chameleon-like coeliac disease even when it changes its appearance.



The Global Map of Coeliac Disease

This article focuses on the worldwide epidemiology of coeliac disease. The information it contains is not only relevant for statistical purposes but also serves to formulate hypotheses on the factors which contribute to the development of this disease that is so widespread in modern society.



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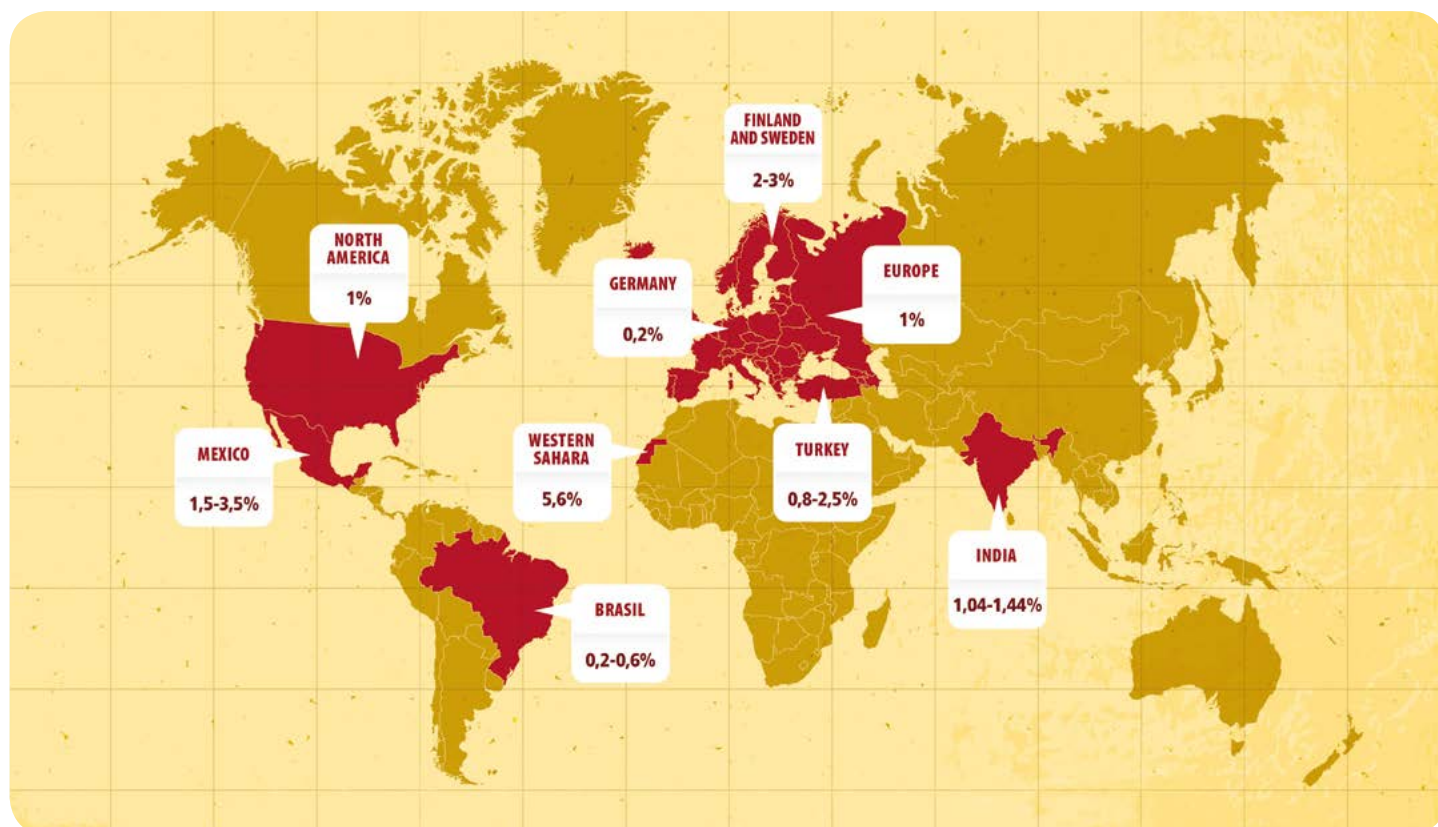
Approximately **70-80%**
of all cases remain undiagnosed.

The development of simple but reliable diagnostic tests, making it possible to analyse the frequency of coeliac disease in different population groups and geographical regions, has hugely assisted epidemiological research in this field. These methods – including the detection of anti-transglutaminase antibodies and anti-endomysial antibodies as well as the HLA test for genetic predisposition – require just a few drops of blood. This international research has resulted in an interesting global map of coeliac disease which we will now consider in a little more detail.

Coeliac disease used to be considered a rare disease limited almost exclusively to those of European origin and in paediatric patients. However, the first serological tests, launched in the 1980s, have revealed a very different reality. Coeliac disease is one of the most frequent of all lifelong diseases, affecting children and adults in equal measure and has been shown to be more common in women (ratio men/women = 1:1.5-2). In Italy, and generally **in Europe, where most research into coeliac**

disease has been carried out, around 1% of the population is affected, although there are major differences between the different European countries: in Germany only 0.2% of the population suffer from coeliac disease, whilst in Finland this figure is over 2%. As the genetic differences between these populations are very small, it can be assumed that these fluctuations in frequency are the result of still relatively unknown environmental factors such as child nutrition, intestinal infections and the typology of intestinal flora (known as “microbiome”). Other countries with populations of primarily European descent – such as the United States, Australia and Argentina – have also shown an average frequency of 1%.

Another worrying fact revealed by epidemiological research is that frequency of coeliac disease is still on the rise in the West. In the United States, for example, the frequency has increased over the last 40 years from 2 cases per thousand to 10 cases per thousand (1%). This alarming fact also indicates that environmental factors, play a decisive role.



Map showing the epidemiology & geography of modern coeliac disease

At the same time as this epidemiological research was being undertaken, the concept of the “coeliac iceberg” developed. This represents the current epidemiological situation that, despite an ongoing rise in diagnosed cases, the number of coeliac sufferers still to be diagnosed is still a long way below previous estimates of the total prevalence. **Approximately 70-80% of all cases remain undiagnosed (representing the section of the iceberg below the water’s surface), which may be due to sufferers experiencing either ambiguous symptoms or no symptoms at all.** In such situations there is a risk that patients may later suffer from complications associated with coeliac disease as a result of not receiving dietary treatment for the condition.

In developing countries the epidemiological reality is far more concerning than in the Western world. First and foremost, the myth that coeliac disease primarily affects Europeans has been disproved: research indicates that the frequency of the disease in North Africa, the Middle East and India is the same (around 1%) as in Europe. Indeed, in one group of African people – the Sahrawi from the Western Sahara – coeliac disease was shown to have an endemic presence of 6-7% among children. The reasons for such a high frequency are unknown; however, it is believed that this specific situation may have been caused by a sudden change in the Sahrawi’s eating habits that saw them switch from a diet of mainly camel milk and camel meat to more European eating habits, including a drastic increase

in their consumption of cereal products, as a result of Spanish colonisation. In developing countries, non-diagnosed cases of coeliac disease can cause severe forms of protein-energy malnutrition, which in turn increases the risk of other diseases and infant mortality. The lack of awareness among doctors about coeliac disease and the limited availability of diagnostic tests mean that the diagnosed cases of the disease represent only a fraction of the total number of people affected. In India, for example, it is estimated that, as well as the few thousand diagnosed cases, there are a further 5-10 million who have coeliac disease (a “coeliac iceberg” that lies almost entirely below the water’s surface).

Considering this situation, it seems right to ask which strategy represents the most effective way of bringing such undiagnosed cases “to the surface”. So far, the strategy most commonly recommended has been to use the diagnostic tests on all persons who are “at risk”, for example relatives of people with coeliac disease as well as individuals with

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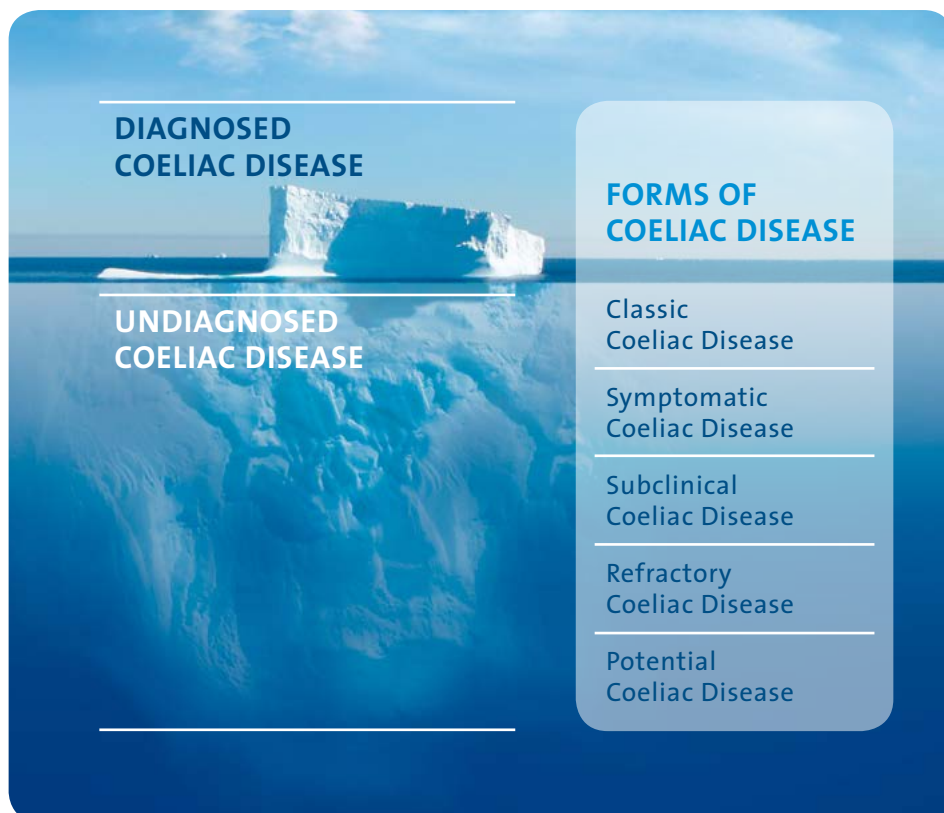
“Universal” screening is gaining ground.



autoimmune diseases or with symptoms that may indicate the presence of coeliac disease (stunted growth, persistent intestinal problems, anaemia, etc.). This low-cost strategy, known as “case-finding”, can be justified from both an ethical and a financial point of view, but it is not particularly effective and diagnoses no more than 30% of cases. Therefore, “universal” screening is gaining ground. In this case, blood tests could be carried out on all children when they reach

the age of compulsory education (5 years) in order to determine the presence of coeliac antibodies. **The effectiveness of this strategy may be linked to the fact that the child’s genetic predisposition could already have been assessed at birth (the HLA test, like other screening methods used on newborns, requires just a drop of blood), so antibody tests are carried out only on those children who tested positive for a genetic predisposition to the disease at birth.**

In conclusion, it can be confirmed that the global map of coeliac disease is far more densely “populated” than previously assumed. Health authorities both in the Western world and in developing countries must pay serious attention to this situation. Epidemiological research into coeliac disease contributes to identifying the environmental factors that may be responsible for fluctuations in frequency. In practice, it is necessary to raise awareness of this “chameleon-like” disease as well as to develop possible mass- screening strategies in order to bring those many undiagnosed cases to point of diagnosis.



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Nutritional adequacy of a Gluten-Free Diet

Research into the nutritional adequacy of a gluten-free diet is limited. This article looks at an ongoing Italian study with the aim of understanding more about the nutritional quality of a gluten-free diet.

A gluten-free diet eliminating all foodstuffs containing gluten and replacing them with products made using gluten-free cereals is considered the only way to treat coeliac disease. Although adherence to a gluten-free diet usually results in symptom improvement and enables the coeliac patient to return to good health, within the scientific community the question has been raised as to the nutritional quality of this diet. The reason is that a number of studies undertaken in the last ten years have shown – albeit with sometimes contradictory results – that coeliac patients do not consume the recommended amounts of certain important nutrients. Most studies indicate that patients with coeliac disease consume less than the recommended amount of complex carbohydrates, fibre, folate, calcium and iron, but more than the recommended amount of protein and energy

from total fat and saturated fats. Therefore, it could be suggested that a gluten-free diet has the potential to be less well balanced than a gluten-containing one. With the **aim of finding out more about the nutritional quality of gluten-free diets in Italian coeliac patients**, we are currently carrying out a study in collaboration with the Centre for Prevention and Diagnosis of Coeliac Disease at the University of Milan involving a group of **300 individuals (150 coeliac patients and 150 non-sufferers)**. These volunteers were selected according to a series of inclusion criteria, including age (between 18 and 70 years), the existence of a regular dietary pattern – and therefore, in the case of the coeliac patients, the adherence to a gluten-free diet for at least the past two years – as well as the absence of metabolic diseases, chronic diseases, certain psychological conditions and special diets. Two research methods were chosen to determine the participants' eating habits: a diary in which each participant lists all the food and drink consumed during one week; and a food frequency questionnaire which all participants were asked to fill in during their first visit to the study centre for the selection procedure. The diary provides detailed information about eating habits, but it is limited to the food and drink consumed during just one week. Therefore, it is not a comprehensive description of a person's general eating habits. The food frequency questionnaire, on the other hand, gives a more general insight into the person's eating habits throughout the previous year, albeit in a less detailed manner. Using both methods makes it possible to gather complementary information. At the same time, the food frequency



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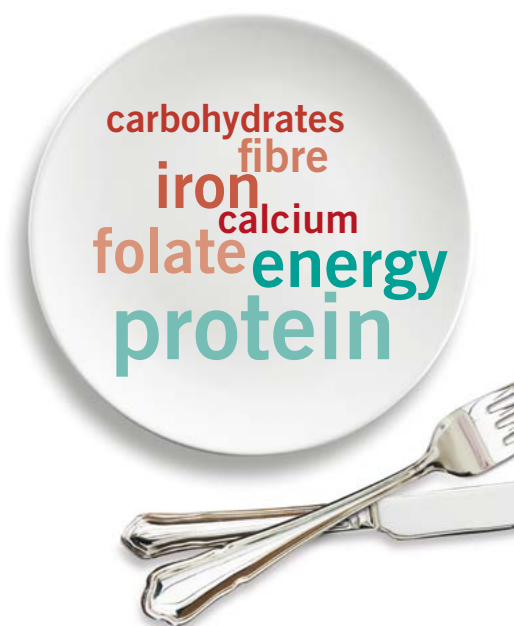
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It is believed, that coeliac patients do not consume the recommended amounts of certain important nutrients.

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Food frequency questionnaires (FFQ)

Food frequency questionnaires (FFQ) are designed to assess habitual diet by asking about the frequency with which food items or specific food groups are consumed over a reference period (e.g. 6 months or a year). FFQs may be based on an extensive list of food items or a relatively short list of specific foods. The foods listed should be a) major sources of a group of nutrients of particular interest or b) foods which contribute to the variability in intake between individuals in the population, and c) commonly consumed in the study population. Questionnaires can be self-administered or interviewer administered.





questionnaire developed for the non-sufferers healthy section of the general population was also analysed in order to expand our study to further test centres in Italy and gather information about a broader group of coeliac patients. The preliminary results of the study suggest that patients suffering from coeliac disease consume too much of their energy intake from fats, in particular saturated fats, when compared to dietary guidelines and also

too much sodium. This is probably down to an increased consumption of sweet foods. **Only a small proportion of coeliac patients consume appropriate amounts of calcium, iron, folate and fibre.** Once this study has reached its conclusion at the end of the year it will reveal a lot of information about coeliac patients' diets that can then be used to improve the eating habits of persons affected by the disease.

This study can be found online at the Dr Schar Institute (<http://www.dr-schar-institute.com/en/clinical-areas/coeliac-disease/clinical-library/webinars-and-presentations/>) and the final results will be sent out to registered healthcare professionals in our newsletter.



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As part of our quality commitment, Dr Schar strives to make high-quality, great-tasting gluten-free products whilst taking into account key nutritional requirements for a well-balanced diet.

For example:

- A large number of our staple products, such as bread, are high in fibre, which is important for those following a gluten-free diet.
- Our products meet the national recommendations for levels of salt in foods
- We are constantly reviewing and trying to reduce the sugar content of our range of sweet products and never use any artificial sweeteners.

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Dietary adherence and the gluten-free diet

This short article looks at the issues surrounding adherence to a gluten-free diet and effect on quality of life in coeliac patients.

Introduction

The only treatment for coeliac disease is a life-long gluten-free diet. The gluten-free diet has evolved from a relatively restricted diet to one including many naturally and specially manufactured gluten-free foods. Whilst the importance of strict adherence to the diet must not be overlooked, it must also be recognised that eating encompasses more than just meeting our physiologic need for nutrients. It is interwoven into the fabric of our lives, culture, social, and emotional needs. The quality of life studies in this area recognise the difficulty of dietary adherence at times, especially in certain social situations. The reasons for non adherence may be as multifaceted as the consequences.

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The “banana diet” was thought to be the only treatment for children with coeliac disease for many years. Actually Dr Samuel Gee was the one who promoted its use back in the 1880's. The children were fed bananas, rice and cream. Because the diet excluded gluten – the children got better. Dr Fasano and Dr Guandalini often refer to the “banana diet” as part of the history of coeliac disease.

The gluten-free diet and quality of life

Several studies have described the interrelationship between the rigid nature of the gluten-free diet, dietary adherence and quality of life scores.^{1,2,3,4,5,6} Several of the studies describe increased anxiety associated with social occasions.^{7,8} **In the Gray study, 74% of the study population (n=788) reported anxiety and depression compared to only 50% before diagnosis.**⁷ This fear and anxiety is often

associated with socialising with friends, feelings of being different, fear of cross-contamination.^{2,6,9} In the studies by Lee, et al^{3,1} the areas of eating out, travel, social interaction, and work are most negatively affected, similar to the European studies. However, in contrast to the European studies there was no significant difference between genders.¹⁰

A similar negative impact on the social aspect of quality of life was reported by Cranney et al.³ Cranney found that 81% of respondents avoided restaurants, 38% avoided travel, and 91% brought their own gluten-free food with them when traveling due to the difficulties of maintaining a gluten-free diet.³ The emotional and social burden of the diet was reported as the reason for avoidance of social activities in another study² highlighting the potentially negative effect of the diet on an individual's life.

Adherence issues

Multiple studies have reported on dietary adherence in coeliac disease.^{11,12,13,14,9,4,15,7} In a study comparing British residents of South Asian and Caucasian ethnic background, the South Asians were less compliant to their gluten-free dietary regime.¹⁶ The South Asian patients were less likely to attend dietetic clinics, join a coeliac support group, and be satisfied with information provided by doctors and dietitians.¹⁶

Only 45.5% of African-American patients with biopsy-proven coeliac disease reported strict adherence to the gluten free diet in a recent study in the United States.¹⁷ Studies have also shown age to be associated with dietary adherence.² In the Barratt study of coeliac patients in the UK, only 4% of those under age 35 reported full adherence and 12% of the



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DEFINITION OF ADHERENCE

There are a number of different terms that are used to describe how patients 'follow' a gluten-free diet.

- **Compliance:** the extent to which a person's behaviour coincides with medical advice.¹
- **Adherence:** implies a more active and collaborative involvement with the patient, working together with the clinician in planning and implementing treatment.²
- **Concordance:** in agreement with/in harmony with.
- **Conformance:** following generally accepted norms.

Adherence and concordance are the terms increasingly being used to describe how a patient and healthcare professional approach the task of following a gluten-free diet. It implies the decision-making and responsibility for treatment is shared between the healthcare professional and individual rather than the majority of responsibility falling to the healthcare professional. One associated problem with this shift in responsibility for an individual's health is that there is inequality of access to healthcare. This is affected by social and cultural factors and may mean some individuals receive a different level of treatment and care to that of other individuals with the same condition. Consequently, those more proactive individuals may receive an increased level of care. Research has shown that individuals are more likely to benefit from intervention when they understand and accept the diagnosis, agree with the proposed treatment and have any of their concerns addressed by the relevant healthcare professional.

under 35 group reported partial adherence² compared to those over 36 years of age in the same study population. The reasons for non adherence were difficulty following the diet while eating out, socialising and personal relationships. Marriage or gender were not determining factors in adherence.²

In a study of 123 adolescents with coeliac disease 65% reported adhering to a strict gluten-free diet, 23.6% reported following a wheat based (non gluten-free diet) despite a prescribed gluten-free diet being recommend and 11.4% reported occasional intake of wheat-based foods.¹¹ The adolescents reported they were fully aware of their indiscretions and that they abandoned the diet to avoid difficulties in social situations.¹¹ Those not on a gluten-free diet reported more symptoms than the other two groups. Antibody levels were elevated in all three groups with the highest level 27.5 for those not consuming a gluten-free diet and 18.7 and 14.2 for those on

a strict gluten-free and semi strict gluten-free diet respectively. The elevated antibody levels correlate with villous changes on the subjects' intestinal biopsies.¹¹

Green found that individuals would "intentionally cheat" on the diet in social situations, dining out, parties, and other functions outside of the home. Only 68% of individuals reported following the diet "all the time" and 30% reported following the diet "most of the time".¹⁸ Although this adherence rate may be viewed as positive amongst other diet regimes the consequence of non-adherence for the individual with coeliac disease are serious. There is an increased risk of infertility, peripheral neuropathies, bone loss, lymphomas, and cancers of the small bowel and oesophagus.¹⁹

Similar findings were reported in a survey of adolescents.⁶ The self-reported adherence ratings were then compared to the adolescent's antibody level and intestinal biopsy reports. The reported non-adherent group had various degrees of intestinal damage and mucosal abnormalities. Interestingly, those who reported strict adherence to the gluten-free diet also showed signs of mucosal abnormalities.⁶ Cicacci's conclusion was that even those who report being on a strict gluten-free diet may not actually be.

In a subsequent study it was found that **the degree of perceived dietary adherence was in sharp contrast to actual adherence.**¹ When a sample of 50 individuals with coeliac disease were questioned, as to how well they adhered to a gluten-free diet, both males and females responded with a high degree of adherence (98%). However when further questioned as to specifically when or where they would ingest gluten both genders reported high dietary indiscretion. Eighty one percent of males reported intentionally ingesting gluten at social activities, at restaurants (82%), and with friends (58%). Females reported higher dietary indiscretion rates than males. Eighty eight percent of females reported dietary indiscretion at social activities and at restaurants, and 67% with friends.¹

Conclusion

These studies highlight the need for further research into the area of dietary adherence and the gluten-free diet. As many of the non-adherence issues revolve around the social aspect in quality of life studies, investigating ways to reduce the feelings of isolation and enhance the feelings of inclusion, acceptance, and normality of the dietary restriction are warranted.

Only **4%** of patients under age 35 reported full adherence to a glutenfree diet.

Practice Tips

As strict adherence to the gluten-free diet is the cornerstone of treatment for individuals with coeliac disease it is important to provide practical and useful suggestions and advice for their everyday lives. Here are a few suggestions based on the latest research.

- ✓ Provide the patient with the name and contact number of the local coeliac support group. Face-to-face support is associated with higher adherence, a feeling of increased empowerment, and a reduced feeling of isolation.
- ✓ Provide educational materials to meet the patient's immediate needs. The materials may need to be broken down into basic infor-

mation (which foods are gluten-free and what to avoid, where to find the foods locally), day to day coping (label reading, recipes etc) and longer-term coping strategies (dining out and travel).

- ✓ Allow for time during follow up visits, to inquire about the patient's adjustment to the gluten-free diet and lifestyle.
- ✓ Encourage a family member to attend follow up visits- this provides an opportunity to discuss lifestyle adjustment.
- ✓ Encourage use of support groups, social workers, or family counseling for any patients who appear to be struggling with the diet and/or adherence to it.

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The Dr Schär Institute has a range of patient resources which can either be downloaded or ordered via the website.

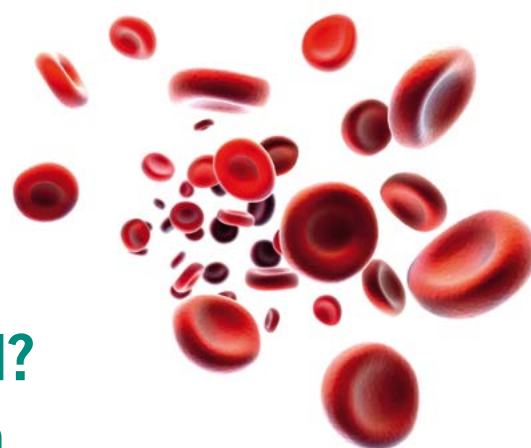
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What is refractory coeliac disease and how is it diagnosed? An insight into current research



This article presents an overview of current understanding on refractory coeliac disease and future developments in this area.



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Background

In most cases, coeliac disease can be treated successfully using a gluten-free diet. However, a **very small proportion of sufferers (around 0.5%) develop refractory coeliac disease**, meaning that they suffer from coeliac-like symptoms despite adhering to a strict gluten-free diet. It is important that refractory coeliac disease is diagnosed since it can result in serious secondary diseases (for example, lymphoma diseases, i.e. malignant diseases affecting certain inflammatory cells). Current techniques used to diagnose refractory coeliac disease are complex and comprise analysis of the patient's cells and genetic material (deoxyribonucleic acid, DNA) using tissue extracted via a gastroscopy. These measures aim to identify whether patients who are believed to be suffering from refractory coeliac disease are among those also at risk of developing T-cell lymphoma (type II refractory coeliac disease), or whether they are suffering from the less serious type I refractory coeliac disease. Patients suffering from type II refractory coeliac disease must be closely monitored and in some cases require medication. One positive aspect worth mentioning is that the treatment methods developed in recent years, primarily in the Netherlands, to treat the more serious form of refractory coeliac disease (type II) represent a clear improvement. Indeed, such improvements in treatment are the reason why it is so important to differentiate between type I and

type II as early as possible. However, **current diagnostic procedures do not enable a reliable differentiation between these two subtypes in a number of patients**. That is why we have decided to focus our research work in Berlin on improving diagnostic techniques in this field using two newly developed testing methods. These will be used on patients suffering from refractory coeliac disease, type I and type II, with the aim of contributing to a reliable diagnosis. Moreover, the results of these tests will be checked against the progression of the disease in the respective patients. We have reason to believe that these **new diagnostic tests can reveal information about the future progression of the disease** – a valuable contribution that no diagnostic method currently in use is able to deliver.

What kind of tests will be used?

The current diagnostic technique involves subjecting certain cells contained in tissue, taken from the small intestine via a gastroscopy, to immunostaining and then analysing these cells under a microscope. In addition, the patient's DNA is checked for changes in the T-cell receptor using a process known as molecular pathology. The T-cell receptor is a key molecule that sits on the surface of certain inflammatory cells (the T-cells) and plays a central role in the body's immune response to pathogens. It is only capable of carrying out this role if





there are several million different versions of this molecule which, in turn, are capable of identifying a huge variety of bacteria, viruses and parasites. In patients suffering from type II refractory coeliac disease, a certain T-cell multiplies so many times that it is identified as a clone by current testing methods. However, in many cases these testing methods are unable to provide a clear result, meaning the doctor cannot be certain whether or not the patient is suffering from the severe form of coeliac disease. This is where the new testing methods are designed to make a difference. The first of these methods, the **FACS analysis of T-cells from the intestine**, removes the inflammatory cells from the tissue and dyes them in a very specific way using antibodies. The antibody binding of tens of thousands of individual cells is then analysed using a FACS machine (Fluorescent Activated Cell Sorter), which makes it possible to quantify the proportion of “diseased”, or “aberrant”, T-cells. This can be carried out both before and after treatment. According to our theory, the number of aberrant T-cells can be used to determine the patient’s condition during the progression of the disease, i.e. to assess how successful treatment has been. We still have to evaluate to what extent the number of aberrant T-cells at the start can be used to indicate the initial severity of the disease. The second testing method, **deep sequencing of T-cell receptors**, analyses the patient’s DNA in a similar way to the molecular pathology technique already used. The difference, however, is

that the analyses carried out are significantly more detailed than those used in molecular pathology, as the important part of the T-cell receptor is “sequenced”, i.e. the exact order of the DNA bases is analysed. Yet, as there is an enormous number of different T-cell receptor variants, this process must be repeated millions of times – a Herculean task possible today thanks to modern DNA sequencing machines. It is this large number of repetitions that gives “deep” sequencing its name. As with the other new testing method mentioned above, the number of repeating T-cell receptor sequences revealed through this technique can indicate the presence of “T-cell clones” – even, we believe, at an early stage when these clones are still in their infancy.

As may be clear from the descriptions above, these new tests place no additional strain on the patient. **Both the existing and the new testing methods require tissue samples taken from the duodenum**, the first section of the small intestine. The new testing methods could, however, enable better differentiation between the two different types of refractory coeliac disease. Consequently, doctors could know for sure whether or not treatment is required, and could evaluate the success of this treatment by analysing those cells placed under attack by the treatment. The result is an optimisation of the diagnostic process and a more targeted treatment, resulting in a significant benefit for the patient.

INFO

DEFINITION REFRACTORY COELIAC DISEASE

Refractory coeliac disease is defined as persistent or recurrent malabsorptive symptoms and/or signs with villous atrophy despite a strict gluten-free diet for more than 12 months, following confirmation of coeliac disease and in the absence of other causes of villous atrophy or malignant complications.

News

Glutafin Product Name Changes

Glutafin have changed some of their product names this year. Some customers have experienced difficulties when placing their repeat order with the Doctor. At some GP surgeries, Glutafin products have been listed as “with-drawn”. **Please be assured Glutafin have NOT withdrawn any products, this was a system error.** Still having issues? The Glutafin team recommend informing your surgery that the products have not been withdrawn, they are simply appearing under a new name. A full list of Glutafin products that have been affected can be viewed on the website. Please don't hesitate to contact us by email or phone on freephone **0800 988 2470**.



3rd International Expert Meeting on Non-Coeliac Gluten Sensitivity

In October, Dr Schar brought 36 international experts together at the 3rd International Meeting on Non-Coeliac Gluten Sensitivity in Salerno, Italy. The discussions focused around “The path from diagnosis of exclusion to the positive diagnosis”. The results of the previous meetings in London (2011) and Munich (2012) prompted this 3rd meeting, at which experts from different countries and disci-

plines exchanged experiences and revealed new scientific findings and opportunities. The focus of this meeting was to explore the current status of studies and identify opportunities, as well as to incorporate and simplify diagnostic criteria. The meeting was chaired by Prof. Carlo Catassi and Prof. Alessio Fasano, with assistance from the newest committee member, Dr. Luca Elli.

Fresh bread ordering over Christmas and New Year 2014/2015

Please see below the dates for ordering Glutafin gluten free fresh bread over this coming Christmas and new year. Please note, we will be limited to one delivery per week over Christmas and New Year, which is detailed below.



	Order Deadline	Delivery Date
Fresh White Loaves PIP 290-6840	Fri 19th Dec by 10am (for Christmas)	Tues 23rd Dec
Fresh Brown Loaves PIP 330-6800	Fri 26th Dec by 10am (for New Year)	Tues 30th Dec
	Fri 2nd Jan by 2pm	Wed 7th Jan

Recent studies on www.drschaer-institute.com

STUDIES

- [Causes of death in people with coeliac disease in England compared with the general population: a competing risk analysis](#) 24.10.2014
- [Glycaemic index of some commercial gluten-free foods](#) 17.10.2014
- [Randomized Feeding Intervention in Infants at High Risk for Celiac Disease](#) 02.07.2014
- [Introduction of Gluten, HLA Status, and the Risk of Celiac Disease in Children](#) 02.10.2014
- [The New Epidemiology of Celiac Disease](#) 27.07.2014
- [Celiac Disease: Ten Things That Every Gastroenterologist Should Know](#) 19.07.2014
- [Risk of pediatric celiac disease according to HLA haplotype and country](#) 03.07.2014

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