

Supplementary Table 1 : List of excluded studies with reasons for exclusion (n=29)

Study	Reason for Exclusion
Aksoy,E., et al., <i>Neurological findings spectrum in celiac disease</i> . Turkish Journal of Pediatrics, 2016. 58 (3): p. 233-240	Did not implement GFD
Ambrosetto, G.; Antonini, L.; Tassinari, C.A., <i>Occipital lobe seizures related to clinically asymptomatic celiac disease in adulthood</i> . Epilepsia, 1992. 33 (3): p.467-481	Did not report on adherence to GFD
Antigoni, M., et al., <i>Increased prevalence of silent celiac disease among Greek epileptic children</i> . Pediatric Neurology, 2007. 36 (3): p.165-169	Did not implement GFD
Briani, C., et al., <i>Neurological complications of celiac disease and autoimmune mechanisms: A prospective study</i> . Journal of Neuroimmunology, 2008. 195 (1-2): p. 171-175	Additional neurological condition
Bruni, O., et al., <i>An unusual case of drug-resistant epilepsy in a child with non-celiac gluten sensitivity</i> . Seizure, 2014. 23 (8): p.674-676	Case study
Bürk, K., et al., <i>Neurological symptoms in patients with biopsy proven celiac disease</i> . Movement Disorders, 2009. 24 (16): p. 2358-2362	Does not report on effects of GFD
Caio, G., et al., <i>Clinical and immunological relevance of anti-neuronal antibodies in celiac disease with neurological manifestations</i> . Gastroenterology and Hepatology from Bed to Bench, 2015. 8 (2): p. 146-152	Did not implement GFD
Cakir, D., et al., <i>Subclinical neurological abnormalities in children with celiac disease receiving a gluten-free diet</i> . Journal of Pediatric Gastroenterology and Nutrition, 2007. 45 (3): p. 366-369	Paper does not compare before and after GFD
Canales, P., et al., <i>Epilepsy and celiac disease: Favorable outcome with a gluten-free diet in a patient refractory to antiepileptic drugs</i> . Neurologist, 2006. 12 (6): p. 318-321	Case study
Cernibori, A., and G. Gobbi, <i>Partial seizures, cerebral calcifications and celiac disease</i> . The Italian Journal of Neurological Sciences, 1995. 16 (3): p.187-191	Non-English paper
Chapman, R.W.G.; Laidlow, J.M.; Colin-Jones, D., <i>Increased prevalence of epilepsy in coeliac disease</i> . British Medical Journal, 1978. 2 (6132): p. 250-251	Does not report on adherence to GFD
Cicarelli, G., et al., <i>Neurologic manifestations in adult celiac disease</i> . Italian Journal of Neurological Sciences. 1997. 18 (4): p. 39	Unable to obtain paper

Cicarelli, G., et al., <i>Clinical and neurological abnormalities in adult celiac disease</i> . Neurological Sciences. 2003. 24 (5): p. 311-317	Results for epilepsy patients missing
Diaconu, G., et al., <i>Celiac disease with neurologic manifestations in children</i> . Revista medico-chirurgicala a Societatii de Medici si Naturalsti din Iasi. 2013. 117 (1): p. 88-94	Non-English paper
Diaz, R.M.; Gonzalez-Rabelino, G.; Delfin, A., <i>Epilepsy, cerebral calcifications and coeliac disease. The importance of an early diagnosis</i> . Revista de Neurological. 2005. 40 (7): p. 417-420	Non-English paper
Fois, A., et al., <i>Celiac disease and epilepsy in pediatric patients</i> . Child's Nervous System. 1994. 10 (7): p. 450-454	Does not report on effects of GFD
Gobbi, G., <i>Coeliac disease, epilepsy and cerebral calcifications</i> . Biomedicine and Pharmacotherapy. 1993. 47 (4): p. 176	Duplicate. Different lead author.
Harper, E.; Moses, H.; Lagrange, A.; <i>Occult celiac disease presenting as epilepsy and MRI changes that responded to gluten-free diet</i> . Neurology. 2007. 68 (7): p. 533-534	Patient has additional neurological condition.
Jericho, H.; Sansotta, N.; Guandalini, S.; <i>Extraintestinal manifestations of celiac disease: effectiveness of the gluten-free diet</i> . Journal of Pediatric Gastroenterology and Nutrition. 2017. 65 (1): p.75-79	Does not specify number of patients with epilepsy/seizures
Johnson, A.M., et al., <i>Coeliac disease, epilepsy, and cerebral calcifications: Association with TG6 autoantibodies</i> , Developmental Medicine and Child Neurology. 2013. 55 (1): p. 90-93	Case study
Kieslich, M., et al., <i>Brain white matter lesions in celiac disease: a prospective study of 75 diet-treated patients</i> , Pediatrics. 2001. 108 (2)	Wrong outcomes
Labate, A., et al., <i>Silent celiac disease in patients with childhood localization-related epilepsies</i> , Epilepsia. 2001. 42 (9): p. 1153-1155	AEDs started after administering GFD
Maniar, V.P.; Yadav, S.S.; Gokhale, Y.A.; <i>Intractable seizures and metabolic bone disease secondary to celiac disease</i> , Journal of Association of Physicians of India. 2010. 58 (8)	Does not report on adherence to GFD
Mavroudi, A., et al.; <i>Successful treatment of epilepsy and celiac disease with a gluten-free diet</i> , Pediatric Neurology. 2005. 33 (4): p. 292-295	Case study
Morris, J.S.; Ajdukiewicz, A.B.; Read, A.E.; <i>Neurological disorders and adults coeliac disease</i> , Gut. 1970. 11 (7): p. 549-554	Wrong outcomes
Peltola, M., et al.; <i>Hippocampal sclerosis in refractory temporal lobe epilepsy is associated with gluten sensitivity</i> , Journal of Neurology, Neurosurgery and Psychiatry. 2009. 80 (6): p. 626-630	Did not implement GFD

<p>Sansotta, N.; et al.; Celiac disease symptom resolution: <i>Effectiveness of the gluten-free diet</i>, Journal of Pediatric Gastroenterology and Nutrition. 2018. 66(1): p. 48-52</p>	<p>Does not specify number of patients in study with epilepsy/seizures</p>
<p>Szaflarska-Poplawska, A.; et al.; <i>Prevalence and clinical picture of coeliac disease in children with epilepsy</i>, <i>Pediatrics Polska</i>. 2006. 81(1): p. 46-49</p>	<p>Non-English paper</p>
<p>Zelnik, N.; et al.; <i>Range of neurologic disorders in patients with celiac disease</i>, <i>Pediatrics</i>. 2004. 113(61): p. 1672-1676</p>	<p>Does not report on adherence to GFD</p>

Supplementary Table 2 Characteristics of selected studies for review

First author, year of publication, Country	Study design	Number of Participants	Number of control individuals	Gluten-free diet duration	Follow-up	Outcomes measured
Arroyo 2002 Argentina	Single Centre Prospective cohort	24	0	> 2 years	Mean 7.4 years	Seizure frequency EEG pattern CT scan results
Bashiri 2016 Iran	2 centre Prospective cohort	7 patients biopsy confirmed CD went on GFD out of a total of 113 patients with epilepsy	0	5 months	3 months and 5 months	Prevalence of CD in people with epilepsy Seizure frequency
Berio 2013 Italy	Single centre Retrospective cohort	12	0	1-10 years	Not reported	Anti-tTG serum antibodies EEG pattern
Casciato 2015 Italy	Single centre Prospective cohort	10 patients with CD went on GFD (2 lost at follow-up) out of a total of 211 patients with epilepsy	0	> 6 months	Mean 1.9 years	Seizure frequency
Gerace 2017 Italy	<i>In vivo</i> and <i>in vitro</i> model experiment exploring the effects of gliadin peptide 31-43 on kainate-induced-epilepsy	Study using mice.	n/a	n/a	n/a	Electrophysical recordings
Gobbi 1992 Italy	Multicentre Prospective cohort	29 with CD went on GFD out of a total 43 (24 with epilepsy and calcifications, 5 with CD and epilepsy)	3	> 6 months	Mean 25.4 months	Seizure frequency

Hernandez 1998 Spain	Single centre Case series	4	0	2-4 years	Mean 2.7 years	Seizure frequency Cranial CT calcifications
Isikay 2015 Turkey	Single Centre study Case control	132 patients formerly diagnosed with CD out of 175 children with CD with no neurological symptoms. Study group divided into newly-diagnosed (n=43) and formerly-diagnosed (n=132) patients	99 age/sex-matched healthy children	Formerly-diagnosed patients GFD for > 6 months Newly-diagnosed patients not undertaking GFD		EEG pattern Laboratory findings
Liccheta 2011 Italy	Single centre Prospective cohort	8	0	> 6 months	12 months	Seizure frequency EEG pattern AED reduction
Parisi 2014 Italy	Single centre before/ after	19	0	6 months	6 months	EEG pattern
Sel 2017 Turkey	Single centre Prospective cohort	4 (3.41%) CD patients with initial symptom seizures, out of 8 (6.83%) with initial symptom being neurological from study of 117 atypical patients	0	> 2 months	unclear	Seizure frequency EEG pattern
Volta 2002 Italy	Single centre Prospective cohort	3 CD with epilepsy patients from total of 160 patients with CD	20	12 months	mean 6 years	Seizure frequency Serological anti-neuronal antibodies

Location of studies: Italy 7, Argentina 1, Iran 1, Spain 1, Turkey 2