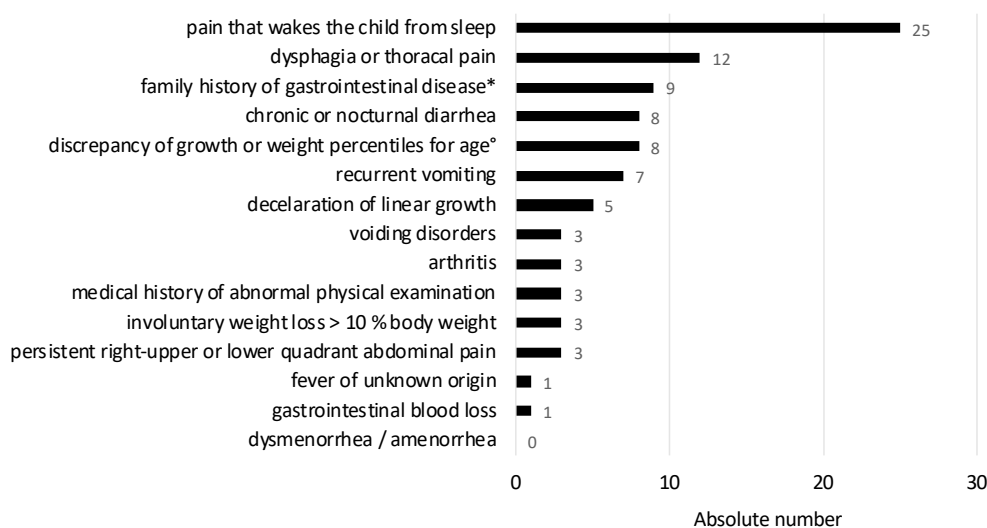


Supplemental Table S1: Basic diagnostic findings in children with chronic abdominal pain (numbers indicate n (%)).

	alarm findings	abdominal examination	blood	urine	stool
abnormal	64 (26%)	43 (17%)	31 (13%)	7 (3%)	36 (15%)
normal	177 (73%)	198 (82%)	199 (82%)	164 (68%)	183 (76%)
missing information	1 (1%)	1 (1%)	12 (5%)	71 (29%)	23 (9%)
total	242	242	242	242	242



Supplemental Figure S1: Alarm findings (n=87) in 64 out of 242 children with chronic abdominal pain. *e.g. chronic inflammatory disease/ celiac disease/ peptic ulcer or other gastrointestinal diseases. ° according to Kromeyer and Hausschild growth charts. Summing up the number of red flags per patient, at least one red flag was reported resp. observed in n=42 cases, two red flags in n=19; three red flags in n=1, and four red flags in n=2 cases.

Supplemental Table 2: Additional diagnostic examinations in 209 children with chronic abdominal pain.

	Abdominal ultrasound	endoscopy	carbohydrate intolerance tests	others
examined patients	128	46	135	10
abnormal results	12 (9%)	12 (46%)	55 (41%)	4 (40%)

Others include MRI, CT, bowel contrast study, sorbitol breath test, fecal helicobacter pylori antigen, prick skin test, and gynecological examination.

Supplemental Table S3: Prevalence of abnormal lactose H₂BT and response to elimination diets in various studies investigating CAP in children.

authors	no. of patients	Age (y) mean±SD [range]	dosage	cut-off	Detection rate %	Dietary response (n) %
Ceriani 1988	32	8.13 ±2.46 #	2g/kg max.50 g	#	75%	58.3%
Winter 1990	62	# [2-16]	2g/kg max.50 g	Δ≥25ppm	28.3%	(16/17 LI) 94.1%
Ockeloen 2012	91	8.4 [1.8-17.8]	2g/kg	≥20ppm	41%	(17/18 LI) 95.4%
Gijsberg 2012	210	8.8 [4.1-16]	2g/kg max.50 g	Δ≥30ppm	27%	(24/38) 63%
Garg 2014	62	# [4-18]	2g/kg max.50 g	Δ≥20ppm	58%	(20/34) 58.8%

Glatstein 2018	95	10.6 ±3.15 [6-18]	2g/kg max.50 g	Δ≥20ppm	66.3%	(40/95) 38%
Present study	114	9.86 ±1.60 [7-12]	2g/kg max.50 g	Δ≥20ppm	17.5%	(6/25) 24%

= no data available; LI= lactose intolerant; SD = standard deviation; Δ = value measured – baseline value.

Supplemental Table S4: Prevalence of abnormal fructose H₂BT and response to elimination diets in various studies investigating gastrointestinal disease in children.

authors	no. of patients	Age (y) mean±SD [range]	disease	dosage	cut-off	Detection rate %	Dietary response (n) %
Gomara 2008	32	12.9 ¹ [7-17]	CAP	1, 15 or 45 g absolute	Δ≥20ppm	0/9 (1g) 0% 3/10 (15g) 30% 8/13 (45g) 61% 55/89 62% 29/89* 33%*	(9/11 FI) 81.8%
Tsampalieros 2008	89	# [3.7-18.7]	Not defined	1g/kg max. 25-50 g	Δ≥20ppm	1-5y 66.6% 6-10y 40.4% 11-15y 27.1%	n.d.
Jones 2011	760	# [0-15]	Not defined	0.5g/kg max.10 g	Δ≥10ppm	57/210* 27%*	(24/38) 63%
Gijsberg 2012	210	8.8 [4.1-16]	CAP	2g/kg max.50 g	Δ≥30ppm	117/278 42%	58.7%
Wintermeyer 2012	278	8.4 [3-14]	CAP	1g/kg max.25 g	Δ≥20ppm	121/222 55%	(93/112) 76.9%
Escobar 2014	222	10.5 [2-19]	CAP	1g/kg max.25 g	Δ≥20ppm	55/103 53%	
Wirth 2014	103	Median 8.8 [3.4-16.4]	CAP	1g/kg max.25 g	Δ≥20ppm	33/103* 32%*	
Hammer 2018	82	10.7 ±3.5 [5-17.6]	Not defined	1g/kg max.25 g	-	33/82 40%	(15/33) 45%
Martinez-Azcona 2019	71	9.5±2.8	CAP	1g/kg max.25 g	Δ≥20ppm	29/71 40.8%	21/29 73.4%
Present study	118	9.81±1.58 [7-12]	CAP	1g/kg max.25 g	Δ ≥20ppm	35/118* 30%*	(7/38) 18%

= no data available; * abnormal hydrogen breath test with symptoms; CAP = chronic abdominal pain; FI = fructose intolerance; Δ = value measured – baseline value; ¹) mean weight 55.2 kg.