

Gliadin daily intake

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Aim - monitoring of true gliadin intake

- The patients – adults, children, students (8 patients, autumn 2005; spring 2006); the patients were chosen by coeliac society
- Instructions + consultation in FRIP
- Forms
- Digital scales
- PE bottles and PE sacks

Monitoring

- Monitoring lasted 30 days
- Blood testing was carried out before and after monitoring – antibodies IgA TTG, IgA gliadin, IgG gliadin were determined
- Labeling of the samples: first day – samples 1A..... to 1Z
- Code of the sample : initials of the patient and number of the sample
- Weight of the sample (or volume in case of drinks)
- Samples: home made and commercial food products
- Packing (bottles, boxes, plastic pots, bags etc.) from commercial food products – a part of gluten-free foods database

- Collected amount of the sample depends on the type of food:
cca 10 -25 g of food; drinks: 10 - 25 ml; soup:25 ml; sauce with meat: 25 g
- Bonbons: 1 - 2 pieces
- Medicine and food supplements: 1 – 3 tablets; 5 ml (syrups for babies and children)

- Cakes with filling – to take away representative sample of dough and filling (jam, cottage cheese, poppy filling)

- It was not necessary to take away fresh fruit and vegetable, pickled vegetable, tea, milk, mineral water, eggs, sugar, butter, salt, fresh meat (bought at butcher without any pickle or sauce)

Examples of the forms

1st day

Meal	Code	Name	Amount	Producer
Breakfast	1A	Homemade toast-bread	103g	home made
		<i>Flour Mantler</i>	<i>ingredient</i>	Mantler Mühle
		<i>Dried yeast</i>	<i>ingredient</i>	Dr.Oetker
	1B	White cream yogurt	150g	Dairy company (CZ)
	1C	Orange jam	90g	Scandic Food
	1D	Vitamins	1 tablet (1.36 g)	Wyeth company
Snack	1E	Anavelon (medicine)	1 tablet (0.098 g)	Zentiva company
Lunch	1F	Gingerbread	47g	Dr.Schär
	1G	Vegetable soup	307g	home made
		<i>Oil, frozen vegetables</i>	<i>ingredient</i>	
		<i>fresh vegetables, amarant pasta</i>	<i>ingredient</i>	
	1H	Wild rice	188g	Mill (CZ)
	1I	Fresh salmon with butter	135g	Delvita
	1J	Olives filled with pepper	34g	Agro Sevilla
Snack		Anavelon (1E)	1 tablet	Zentiva company
Dinner		Bread (1A)	34g	home made
	1K	Hard cheese for frying	54g	Delvita
Others		Anavelon (1E)	1 tablet	Zentiva company
		<i>Fresh fruit & vegetables</i>		
	1L	Tea biscuits	23g	Private bakery

Examples of the forms

1st day

Meal	Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	1A	Homemade toast-bread	103g	1.30	1.34
		<i>Flour Mantler, dried yeast</i>			
	1B	White cream yogurt	150g	0.00	0.00
	1C	Orange jam	90g	0.00	0.00
	1D	Vitamins	1 tablet (1.36 g)	0.00	0.00
	1E	Anavelon (medicine)	1 tablet (0.098 g)	0.00	0.00
Snack	1F	Gingerbread	47g	0.00	0.00
Lunch	1G	Vegetable soup	307g	0.00	0.00
		<i>Oil, frozen vegetables</i>			
		<i>Fresh vegetables, amarant pasta</i>			
	1H	Wild rice	188g	0.00	0.00
	1I	Fresh salmon with butter	135g	0.00	0.00
	1J	Olives filled with pepper	34g	0.00	0.00
	(1E)	Anavelon	1 tablet	0.00	0.00
Snack					
Dinner	(1A)	Bread	34g	1.30	0.44
	1K	Hard cheese for frying	54g	0.00	0.00
	(1E)	Anavelon	1 tablet	0.00	0.00
Others		<i>Fresh fruit & vegetables</i>			
	1L	Tea biscuits	23g	4.25	0.98

total intake (mg) : 2.76

Examples of the forms

9th day

Meal	Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	(7A)	Cupcake	111g	0.42	0.47
		<i>Butter</i>	17g		
		<i>Fruit tea</i>	300ml		
Snack	(7C)	Roll	40g	0.45	0.18
	9A	Billberry puree	190g	0.00	0.00
		<i>1 Tangerine</i>	217g		
	(7CR)	Syrup	33g	0.00	0.00
Lunch	9B	Cream sauce with dill	281g	0.42	1.18
		<i>Oil, butter, milk, water, dill, vinegar, flour</i>			
	(6B)	Dumplings	135g	0.33	0.45
		<i>1 Egg</i>	60g		
Snack	(7D)	Chocolate dessert	90g	0.00	0.00
	(4D)	Rice bread with chocolate	25g	0.30	0.08
		<i>1 Tangerine</i>	65g		
	9C	Bonbon JOJO	18g	0.33	0.06
Dinner 1	9D	Pancake made from buckwheat flour	208g	8.99	18.70
	9E	Cherry jam	56g	0.00	0.00
	9F	Wipped cream	20g	0.31	0.06
	9G	Soluble cocoa	1g	0.33	0.00
Dinner 2	(5C)	Homemade smoked meat	95g	0.29	0.28
	9H	Wholemeal bread	132g	0.39	0.51
		<i>Butter</i>	29g		
		<i>Cucumber</i>	92g		
Others					

total intake (mg) : 21.96

Examples of the forms

6th day

Meal	Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	(5A)	Ginger bread	106g	0.39	
		<i>Fruit tea</i>	300ml		
	(1D)	Syrup	35g	0.00	0.00
Snack	(5D)	Bread	144g	0.35	0.50
	(1C)	Cheese	15g	0.00	0.00
	(5G)	Roasted meat	22g	0.00	0.00
		<i>1 Tangerine</i>			
Lunch	(5B)	Broccoli soup	322g	0.23	0.74
	6A	Venison with cream sauce	293g	0.31	0.91
		<i>Vegetables, butter, oil, milk, cream,</i>			
	(5F)	<i>Whipped cream</i>		0.00	0.00
	6B	Dumplings	177g	0.33	0.58
		<i>Eggs, milk, salt, yeast, flour</i>			
Snack	6C	Cranberries compote	35g	0.00	0.00
	(5D)	Bread	60g	0.35	0.21
	(1C)	Cheese	15g	0.00	0.00
		<i>Green bell pepper</i>	67g		
Dinner 1	6D	Chocolate bar Clara	25g	45.20	11.30
	6E	Sausages	111g	0.00	0.00
	6F	Mustard	20g	0.30	0.06
	(5D)	Bread	134g	0.35	0.47
		<i>Fruit tea</i>	300ml		
Diner 2	(5D)	Bread	120g	0.35	0.42
	(1L)	Liver pate	34g	0.00	0.00
Others		<i>Cucumber</i>	62g		
		<i>Carrot</i>	104g		

total intake (mg) 15.20

Examples of the forms

12th day

Meal	Code	Name	Amount (g;ml)	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	(1S)	Milk	21	0.09	0.02
	(8D)	Grape sugar with vitamin C	2.4	0.12	0.00
	12A	Grissini bars	30	0.71	0.21
	(1I)	Activia vanilla	190	0.49	0.93
Snack		<i>Apple</i>			
Lunch	12B	Roll home made	64	0.16	0.10
	12C	Debrecen roasted meat	15	0.41	0.06
	(1Q)	Processed cheese	15	0.56	0.08
Snack	(1I)	Activia vanilla	190	0.49	0.93
Dinner	12D	Sausage with cheese	120	0.11	0.13
	12E	Baby ketchup	20	0.15	0.03
	12F	Bitter chocolate Lindt 70%	15	0.16	0.02
	(1S)	Milk	21	0.09	0.02
		<i>Fresh red bell pepper</i>			
Others	(1T)	Wobenzym	1.438	0.14	0.00
	(1U)	Zaditen	0.185	0.42	0.00
	(1V)	C-vitamin, orange	0.523	0.69	0.00
	(8C)	Syrup - garden mix	55	0.15	0.08
				total intake (mg)	2.63
				without Activia	0.78

Examples of the forms

6th day

Meal	Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	6A	Gingerbread with chocolate icing	54	0.18	0.10
Snack	6B	Strawberries compote	135	0.14	0.19
Lunch	6G	Chicken skewer	54	0.35	0.19
	(1D)	Grill spice	<i>ingredient</i>		
	(1C)	Mushrooms	<i>ingredient</i>	0.26	
	(4D)	English bacon	<i>ingredient</i>	0.43	
		<i>Potatoes</i>			
Snack	6C	Chocolate cake	90	0.14	0.12
Dinner	(2A)	Bread	26	0.26	0.07
	(4B)	Ham	24	0.44	0.11
		<i>Butter, cheese Eidam</i>			
Others	(2D)	Strawberry drink	400	0.28	1.10
	6B	Strawberries compote	130	0.14	0.18
	6D	Strawberries juice YO	20	1.22	0.24
	6E	Fruit ice Tringo	35	0.17	0.06
	6F	Fanta - orange	200	0.16	0.33
			<i>Tea, water</i>		
				total intake (mg)	2.69
				without drinks	1.01

Examples of the forms

11th day

Meal	Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
Breakfast	11A	Buckwheat porridge	250g	0.00	0.00
		<i>Buckwheat flakes, butter, milk, celeriac,</i>			
		<i>Provensal herbs, garlic, parsley top</i>			
	(9C)	Vitamin C	1 tablet(0.331 g)	0.44	0.01
Snack	11B	Chocolate bar with cream	22g	0.00	0.00
Lunch	11C	Millet	300g	0.00	0.00
		<i>Millet, water, milk, salt</i>			
		Apple puree	127g	0.00	0.00
		<i>Cinnamon, dried dates, poppyseed, milk</i>			
		<i>Butter</i>			
Snack	11D	Cream dessert with cocoa	73g	0.00	0.00
Dinner	(8D)	Bread	83g	0.00	0.00
	(10A)	Primator cheese	16g	0.00	0.00
	(7A)	Dry salami	25g	0.00	0.00
Others		Water	400ml		

total intake (mg) : 0.01

Examples of the forms

Code	Name	Amount	Gliadin (mg/100g)	Gliadin (mg)
11A	Cottage cheese dessert with cocoa	68	0.27	0.18
(1c)	Chinese medicine 1	2	0.37	0.01
(4a)	Chinese medicine 2	2	0.00	-
(4b)	Chinese medicine 3	3.5	0.30	0.01
(6d)	Sinupret (medicine)		0.00	-
11B	Chocolate bar	50	0.60	0.30
11C	Potato soup	213	0.17	0.36
(6e)	Zyrtec		0.00	-
11D	Rice mush	231	1.38	3.19
11D/1	<i>Fine rice grits</i>			
11E	Bread Pain Campagnard	34	0.29	0.10
(10a)	Drink ICE FRUIT	250	0.00	-
11e	Bread (11E)	138	0.29	0.40
	<i>Egg, vegetables, butter</i>			
	<i>Fruit, tea</i>			
11F	Pickled cucumber	20	0.00	-
(1c)	Chinese medicine 1	2	0.37	0.01
(4a)	Chinese medicine 2	2	0.00	-
(4b)	Chinese medicine 3	3.5	0.30	0.01
(6d)	Sinupret (medicine)		0.00	-
11G	Calcium effervescent Maxi-Kalz	4	0.28	0.01
				4.58

day	gliadin intake (mg/day)
1	1.48
2	1.98
3	2.10
4	0.81
5	1.84
6	2.69
7	1.51
8	1.66
9	0.34
10	2.87
11	1.08
12	1.21
13	1.72
14	1.09
15	1.94
16	2.04
17	0.89
18	0.64
19	1.88
20	1.53
21	3.87
22	1.83
23	1.46
24	1.95
25	2.10
26	2.94
27	1.21
28	1.27
29	1.49
30	1.97
	gliadin (mg)
average per day	1.7
average per day without drinks	1.1

Results

Boy 7 years

Boy 4 years

day	gliadin intake (mg/day)
1	3.34
2	1.71
3	2.38
4	0.99
5	1.71
6	1.86
7	1.68
8	1.03
9	2.36
10	1.44
11	2.54
12	2.58
13	2.07
14	1.99
15	0.09
16	0.22
17	0.46
18	1.96
19	1.62
20	1.17
21	1.18
22	1.45
23	1.85
24	1.72
25	2.33
26	1.41
27	1.05
28	0.94
29	0.54
30	1.11
	gliadin (mg)
average per day	1.5
average per day without Activia	1.1

Results

Female 32 years

Student 21 years

day	gliadin intake (mg)
1	4.65
2	2.67
3	4.87
4	1.67
5	2.34
6	3.75
7	4.37
8	2.54
9	6.8
10	4.26
11	3.94
12	3.86
13	3.32
14	3.68
15	2.68
16	5.29
17	2.79
18	2.17
19	1.26
20	2.02
21	3.41
22	3.64
23	5.78
24	3.44
25	3.31
26	2.74
27	2.31
28	2.85
29	0.90
30	4.59
31	1.89
gliadin (mg)	
average per day	3.7
average per day without drinks	3.4

day	gliadin intake (mg)
1	2.29
2	1.42
3	1.80
4	0.99
5	1.28
6	2.90
7	3.77
8	0.87
9	1.32
10	1.65
11	0.00
12	0.19
13	0.90
14	1.26
15	0.78
16	0.10
17	1.45
18	2.68
19	1.67
20	0.98
21	1.19
22	2.01
23	2.06
24	3.76
25	2.83
26	2.57
27	1.70
28	2.43
29	3.88
30	1.98
gliadin (mg)	
average per day	<u>1.8</u>

Results

Student 16 years

day	intake (mg)
1	0.80
2	0.15
3	1.13
4	6.13
5	3.12
6	15.61
7	4.32
8	3.86
9	21.69
10	23.10
11	4.34
12	7.56
13	7.53
14	2.13
15	2.48
16	1.56
17	3.09
18	5.05
19	4.72
20	3.52
21	9.51
22	3.46
23	2.18
24	3.39
25	9.65
26	2.28
27	3.72
28	1.99
29	3.54
30	4.06
	gliadin (mg)
average per day	5.5
	3.1

Chocolate bar Clara (wheat sprouts)

Pancake from buckwheat flour

Home made potato soup

Chocolate bar Clara (wheat sprouts)

Results

Gladin daily intake (mg/day)

	age	weight(kg)	daily intake	corrected daily intake*
student (boy)	16	44	5.5	3.1
student(girl)	21	58	1.8	-
female	45	58	2.7	-
female (pregnant)	29	59	2.0	-
female	32	55	3.7	3.4
boy	7	20	1.7	1.1
boy	4	25	1.5	1.1
girl	10		2.6	-

*dietary mistake, drinks etc.

Results

Antibody blood testing		1 st day % internal standard	30 th day % internal standard
Boy 4 years	IgA TTG	13.4	13.7
	IgA Gliadin	14.4	13.2
	IgG Gliadin	62.4	45.3
Boy 7 years	IgA TTG	18.7	15.8
	IgA Gliadin	20.7	23.4
	IgG Gliadin	47.2	42.1
Female 32 years	IgA TTG	19.8	31.9
	IgA Gliadin	31.8	24.8
	IgG Gliadin	35.1	20.5
Female 45 years	IgA TTG	13.0	14.9
	IgA Gliadin	22.3	34.4
	IgG Gliadin	32.0	34.9

Results

Antibody blood testing		1st day % internal standard	30st day % internal standard
Girl 10 years	IgA TGT	44.1	36.9
	IgA Gliadin	16.5	17.6
	IgG Gliadin	102.7	106.7
Student 21 years	IgA TGT	21.9	19.1
	IgA Gliadin	36.9	27.9
	IgG Gliadin	57.3	50.1
Student 16 years	IgA TGT	20.2	23.4
	IgA Gliadin	20.6	24.1
	IgG Gliadin	40.3	38.5
Female 29 years	IgA TGT	18.7	23.7
	IgA Gliadin	22.5	25.0
	IgG Gliadin	45.7	46.4