

Fruits and Vegetables as Sources of Carotenoids in Complementary Feeding

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Background

Proper nutrition in first years of life is crucial for children development. Fruits and vegetables are sources of numerous nutrients and bioactive compounds, such as carotenoids with antioxidant potential.

Aims

- to investigate if fruits and vegetables rich in carotenoids are offered as first solids
- to assess if early nutritional factors may be associated with offering them

Materials and Methods

→ Internet-based study, conducted in 2016-2018

→ 4104 mothers of children aged 12-36 months from Poland

→ questionnaire: exclusive breastfeeding duration, timing and method of complementary feeding introduction, first 5-10 products that were offered as first solids (qualitative method)

→ statistical analysis: χ^2 test

Conclusions

Carrot and broccoli were the most often offered first solids. Early nutrition factors, such as exclusive breastfeeding duration, method and age at complementary feeding introduction may be associated with offering different fruits/vegetables that are sources of carotenoids.

Offered as first solid (%)



89.8*



54.0**



39.7



3.1



0.9



0.02

* richest source of carotenoids
 ** highest antioxidant capacity
[1,2,3]



Results

Products offered as 1st solid	Age at complementary feeding introduction (%)			P		
	< 4 mo (n=102)	4-6 mo (n=2486)	≥ 7 mo (n=1516)			
Pumpkin	40.2	41.2	37.2	0.041		
Sweet potato	3.9	7.5	13.7	0.000		
Tomato	2.0	2.7	5.1	0.000		
Avocado	0.0	2.7	4.0	0.012		
Broccoli	33.3	50.4	61.2	0.000		
	Complementary feeding method (%)			P		
	TSF (n=1152)	Mixed (n=2244)	BLW (n=708)			
Pumpkin	47.6	41.9	20.1	0.000		
Sweet potato	4.4	9.8	17.9	0.000		
Tomato	1.1	3.2	8.9	0.000		
Avocado	1.2	3.1	6.2	0.000		
Broccoli	41.9	55.6	68.5	0.000		
	Exclusive breastfeeding duration (%)					P
	Never (n=2290)	1-3 mo (n=105)	4-5 mo (n=408)	6 mo (n=1105)	≥ 7 mo (n=196)	
Pumpkin	41.1	30.5	43.4	38.6	27.0	0.000
Sweet potato	9.4	6.7	5.6	11.5	12.8	0.004
Tomato	3.1	3.8	1.5	5.2	4.6	0.003
Avocado	2.3	1.0	3.4	4.4	5.6	0.002
Broccoli	54.2	38.1	46.6	57.8	53.6	0.000

1. USDA National Nutrient Database,
 2. USDA Database for the Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods, Release 2, 2010.
 3. Hamulka J., Wawrzyniak A.: Lycopene and lutein - pro-health properties and their content in products. SGGW Publ. Warsaw 2004.