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Do psychological pathways exist between certain perinatal factors and childhood obesity?

Eva Kovacs, Alfonso Siani, Toomas Veidebaum, Michael Tornaritis, Stefaan De Henauw, Gabriele Eiben, Luis Moreno, Wolfgang Ahrens, Denes Molnar

The Power of Programming
Developmental Origins of Adiposity and Long-term Health
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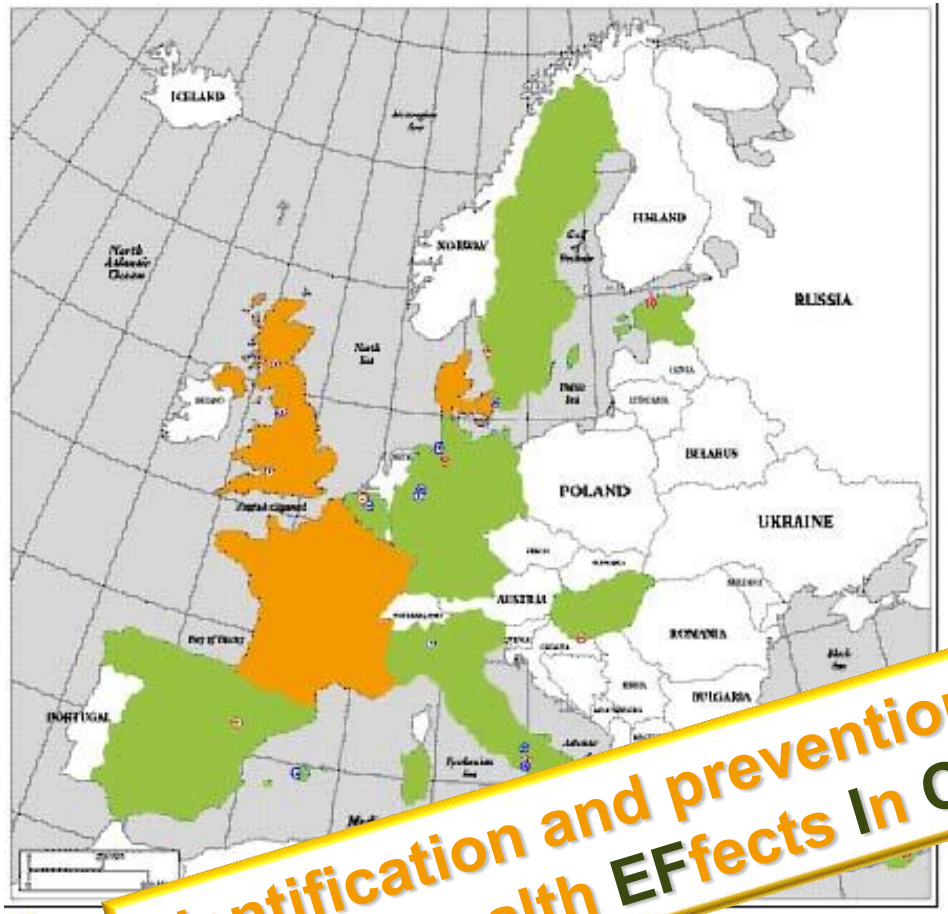

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Identification and prevention of Dietary- and lifestyle-induced health EFfects In Children and infantS

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Aim of the research

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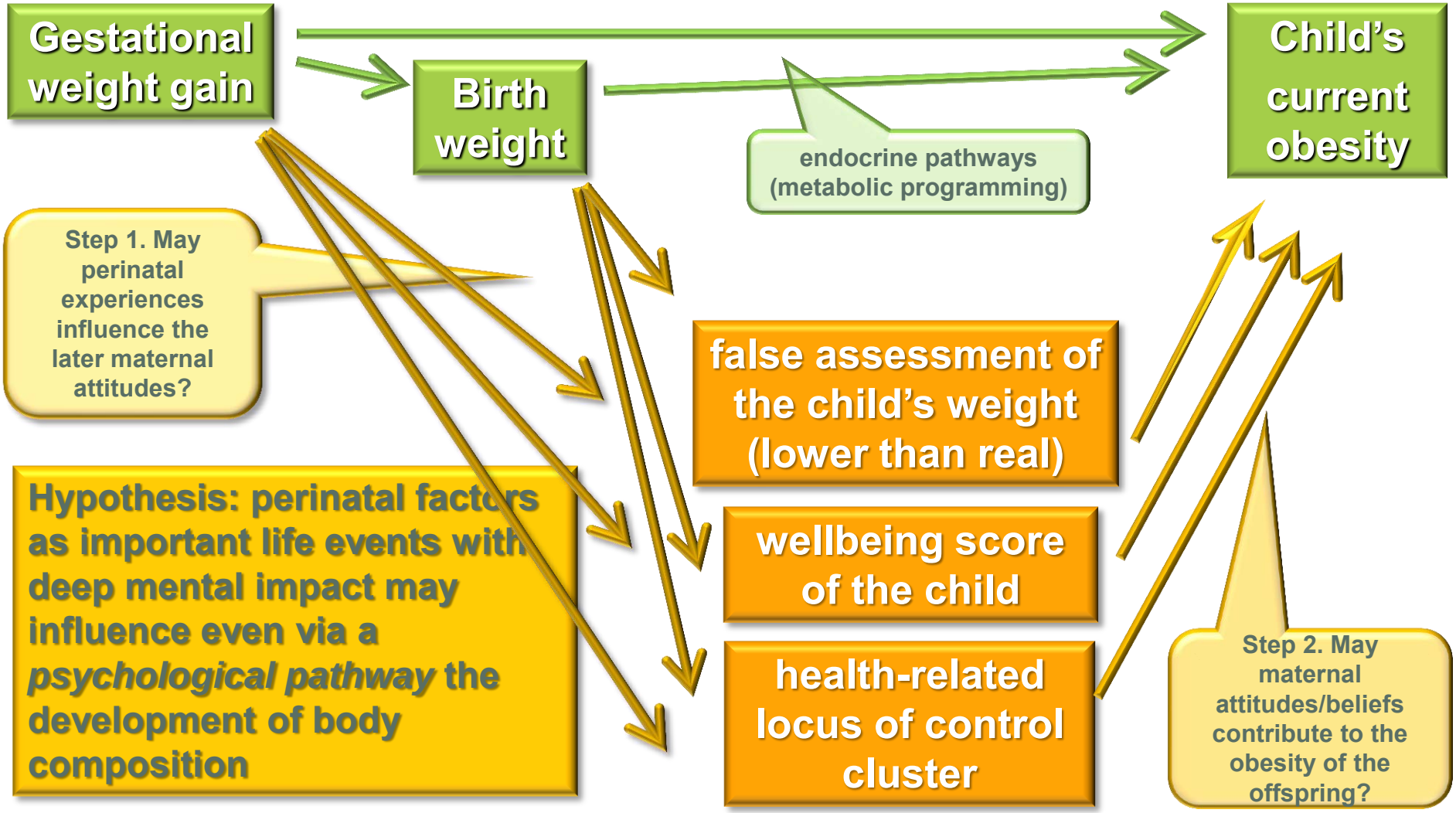

Sample

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Baseline survey | **16 228 children**

Exclusion criteria:

- preterm birth
- missing information on gestational weight gain & birth weight
- missing information on addressed psychological factors or reported by other than the biological mother

Analysed population | **9 035 children**

boys: 49.5%, age: 6.0±1.81 years,

BMI z score: 0.37±1.17 (mean±SD)

Definition of the applied anthropometric factors

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Gestational weight gain

Reported by biological mother (parental questionnaire); categorized according to the percentiles of the IDEFICS sample: <15th; 15th-85th; >85th

Birth weight

Reported by biological mother (parental questionnaire); categorized according to the WHO growth standards: <15th; 15th-85th; >85th

(Acta Paediatr. Suppl. 2006 Apr;450:76-85. WHO Child Growth Standards based on length/height, weight and age. WHO Multicentre Growth Reference Study Group.)

Child's current obesity

BMI categorized according to IOTF

(Cole TJ. Lobstein T. Extended international (IOTF) body mass index cut-offs for thinness. overweight and obesity. Pediatr Obes 2012; 4:284-294.)

Measurements:

Weight by electronic scale (Tanita BC 420 SMA, Tanita Europe GmbH, Sindelfingen, Germany) to the nearest 0.1 kg.

Height by telescopic height measuring instrument (Seca 225 stadiometer, Birmingham, UK) to the nearest 0.1 cm.

Definition of the applied psychological factors 1.

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false assessment of the child's weight (lower than real)

Real BMI category	Parental opinion				
	underweight	normal	overweight	obese	
normal	26%	72%	2%	0%	100%
overweight	1%	53%	46%	0%	100%
obese	0%	8%	77%	15%	100%

Parents significantly underrate their child's weight. This trend increases with the increasing body weight category of the child: the more obese the child, the more underestimated by the parent.

Green field: correct estimation

Red: underestimation

Definition of the applied psychological factors 2.

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wellbeing score of the child

4 of the original 6 KINDL® questionnaire modules, reported by the mother about the child:

- emotional self-being,
- self-esteem,
- family,
- social contacts.

The range of the score: 12-48; higher values means greater well-being

Ravens-Sieberer U, Bullinger M. KINDL-R. Fragebogen zur Erfassung der gesundheitsbezogenen Lebensqualität bei Kindern und Jugendlichen. Revidierte Form. Manual. In, 2000.

Ravens-Sieberer U, Ellert U, Erhart M. [Health-related quality of life of children and adolescents in Germany. Norm data from the German Health Interview and Examination Survey (KiGGS)]. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz.* 2007; 50(5-6): 810-8.

Definition of the applied psychological factors 3.

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health-related locus of control cluster

1. If I see an excellent doctor regularly, I am less likely to have health problems.
2. It seems that my health is greatly influenced by accidental happenings.
3. I can only maintain my health by consulting health professionals.
4. Whatever goes wrong with my health is my own fault.
5. When I feel ill, I know it is because I have not taken care of myself properly.
6. The type of care I receive from other people is responsible for how well I recover from an illness.
7. Even when I take care of myself it's easy to get sick.
8. When I become ill it's a matter of fate.
9. I can pretty much stay healthy by taking good care of myself.

green: agreement means internal locus of control (reversed for summarizing the cluster)

orange: agreement means outer locus of control

Results 1.

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Gestational weight gain

Birth weight

P<0.001

Child's current obesity

high GWG increased the chance for judging the child's weight falsely lower than real

(OR: 1.19,
CI: 1.07-1.33;
p=0.002)

false assessment of the child's weight (lower than real)

false assessment increased the risk for having extra weight

(OR: 5.49,
CI: 4.91-6.16;
p<0.001)

Results 2.

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Gestational weight gain

Birth weight

Reverse direction: lower well-being score for <15th; p< 0.001

Child's current obesity

High GWG correlated inversely with wellbeing score of the child (p=0.004)

wellbeing score of the child

Lower well-being score showed an increased risk for having overweight or obesity (OR=1.26, CI: 1.17-1.58; p<0.001)

Results 3.

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Gestational weight gain

1.	P=0.037
2.	NS
3.	p<0.001
4.	P=0.009
5.	NS
6.	NS
7.	P=0.001
8.	NS
9.	P=0.02

Birth weight

1.	NS
2.	P=0.014
3.	p<0.001
4.	p<0.001
5.	P=0.031
6.	NS
7.	P=0.004
8.	NS
9.	NS

Child's current obesity

1.	p<0.001
2.	NS
3.	p<0.001
4.	p=0.013
5.	P=0.002
6.	P=0.028
7.	p<0.001
8.	NS
9.	NS

health-related locus of control cluster

The cluster was not coherent enough (Cronbach's alpha: 0.57) to be significant. Some individual measures of health-related locus of control showed significant correlation.

Conclusion

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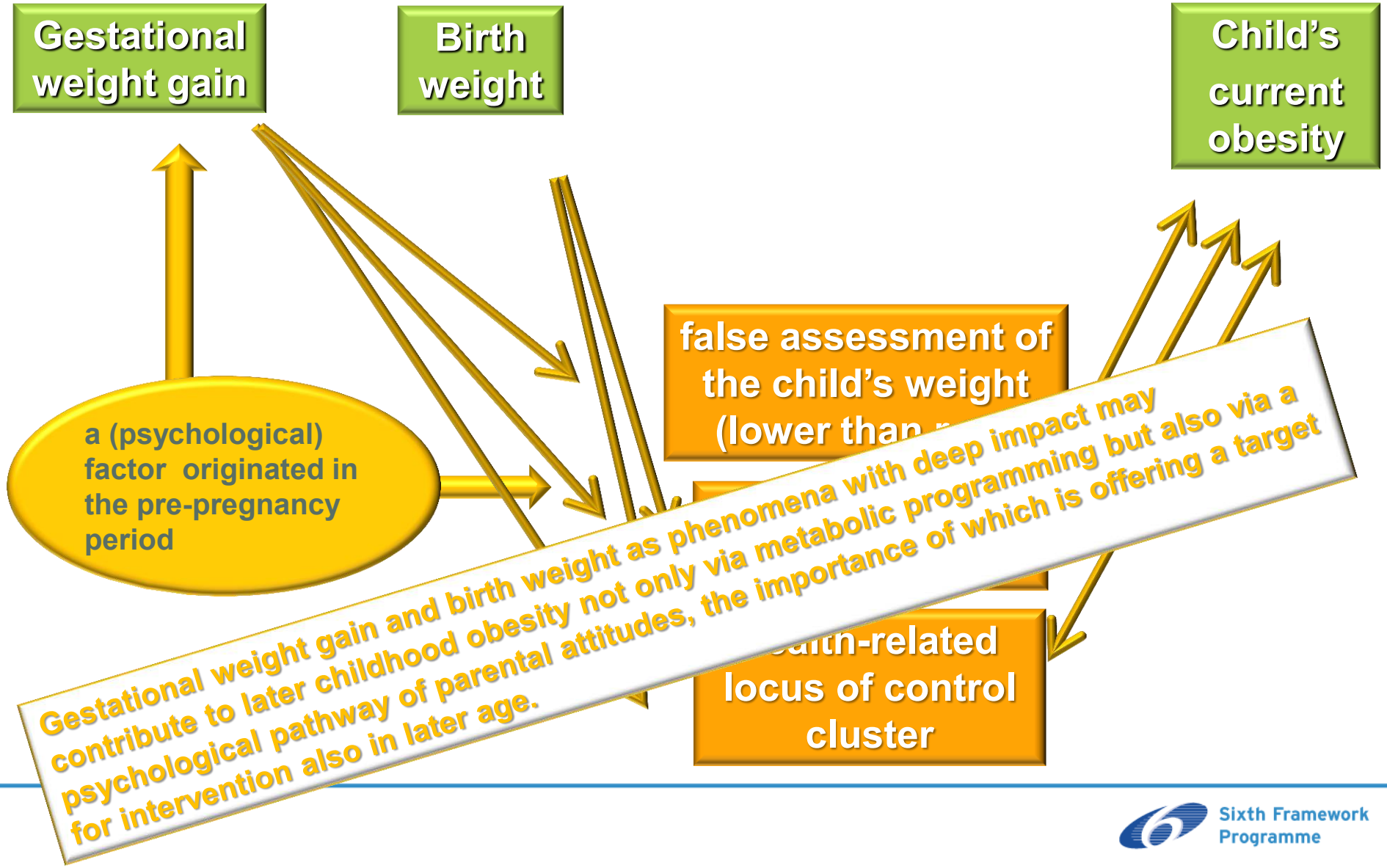

One small step on the long road tackling childhood obesity

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Thank you for your attention

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