

# A Randomized Trial on the Effects of Perinatal Education of Overweight Pregnant Women to Prevent Childhood Overweight: the ETOIG study.

Sophie Parat<sup>1</sup>, Emmanuel Cosson<sup>2</sup>, Amandine Baptiste<sup>3</sup>, Marie-Thérèse Tauber<sup>4</sup>, Paul Valensi<sup>2</sup>, Anne-Marie Bertrand<sup>5</sup>, Myriam Dabbas<sup>6</sup>, Caroline Elie<sup>3</sup>, Françoise Lorenzini<sup>7</sup>, Véronique Nègre<sup>8</sup>

<sup>1</sup>Service médecine et réanimation néonatale, Hôpital Port Royal, Paris; <sup>2</sup>Service endocrinologie, Hôpital Jean Verdier, Bondy; <sup>3</sup>URC/CIC Paris Descartes Necker Cochin, Hôpital Necker, Paris; <sup>4</sup>Service endocrinologie pédiatrique, Hôpital des enfants, Toulouse; <sup>5</sup>Service endocrinologie pédiatrique, CHRU, Besançon; <sup>6</sup>Unité de Nutrition Obésité, Hôpital Necker Paris; <sup>7</sup>Service endocrinologie, hôpital Paul Viguier, Toulouse; <sup>8</sup>RePPOP-FC, Hôpital Saint Jacques, Besançon

## OBJECTIVE

We aimed to evaluate whether perinatal education of overweight pregnant women would reduce childhood overweight.

## BACKGROUND

Early-life risk factors of childhood obesity include maternal obesity; smoking, diabetes and high weight gain during pregnancy for the mother; short duration of breastfeeding and poor quality of early feeding in the infants. Perinatal life thus may be a good period for primary prevention.



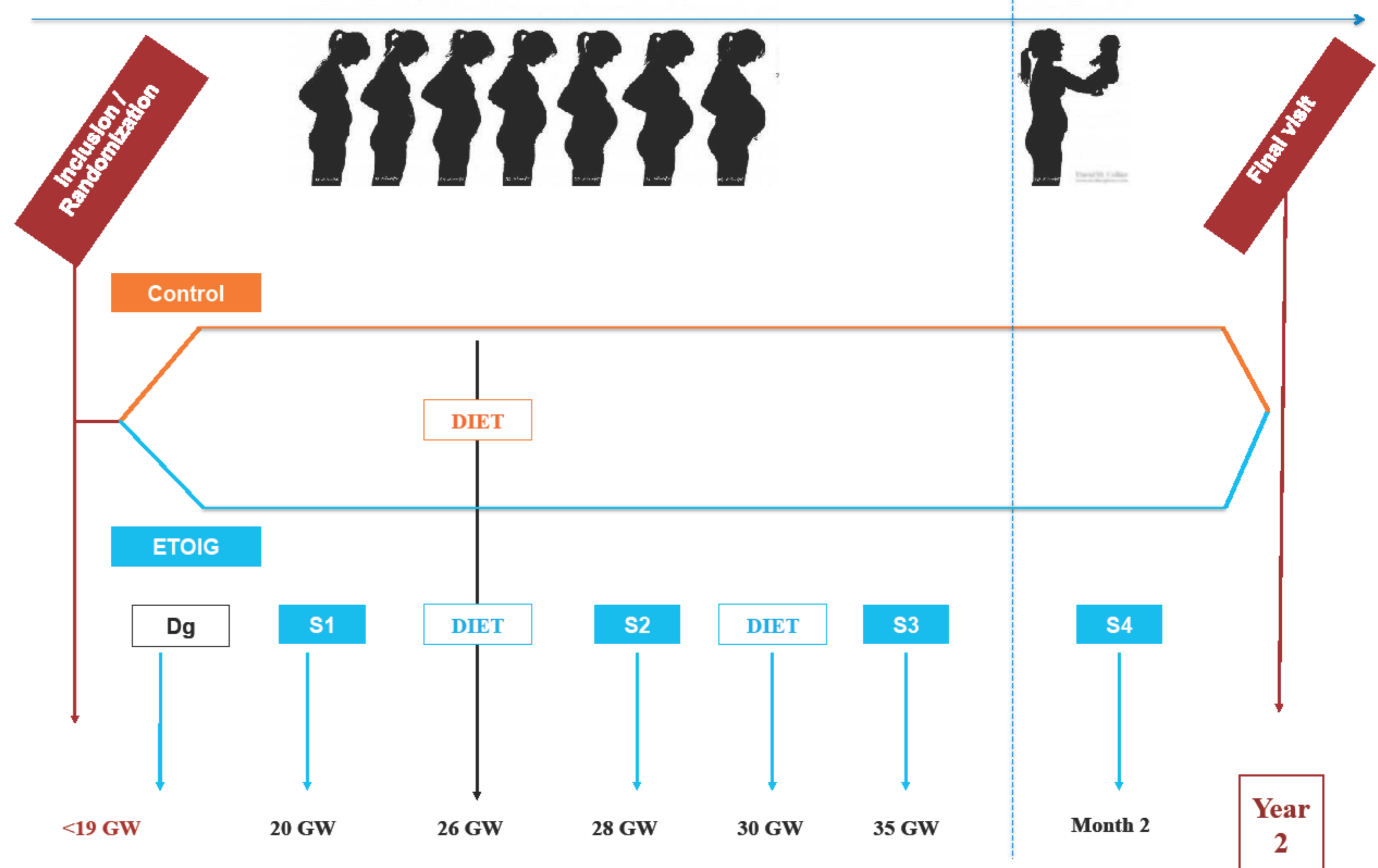
## METHOD

Four French centers included before 20 weeks of gestation, 268 pregnant women who were overweight before pregnancy. They were randomized into either a control group (routine care including at least one dietary consultation) or an interventional group.

The intervention was based on patient therapeutic education with 2 individual (DIET) and 4 collective sessions (S1-S4) which aimed to educate the future mother for infant and maternal nutritional aspects, without weight objectives.

Variable	Control group (n=136)	Interventional group (n=132)
Age (years) at inclusion	30.4 ± 5.0	30.3 ± 5.1
Primiparity	59 (43.4%)	57 (43.2%)
Weight before pregnancy (kg)	88.3 ± 15.9	88.4 ± 16.6
BMI before pregnancy (kg/m <sup>2</sup> )	32.5 ± 5.4	32.5 ± 5.4
BMI ≥ 30 kg/m <sup>2</sup> before pregnancy	82 (60.3%)	83 (62.9%)
Gestational age at inclusion	17 [6-21]	18 [6-21]
Fasting glucose value at inclusion (g/l)	0.84 ± 0.08	0.84 ± 0.07
History of smoking	30 (22.1%)	35 (26.5%)
History of drug habits	5 (3.7%)	6 (4.5%)
History of gestational diabetes mellitus	7 (5.1%)	12 (9.1%)
History of macrosomia	12 (8.8%)	15 (11.4%)
BMI of the future father (kg/m <sup>2</sup> )	26.1 ± 4.1	26.6 ± 4.3

BMI: body mass index  
GW: gestational week



## RESULTS

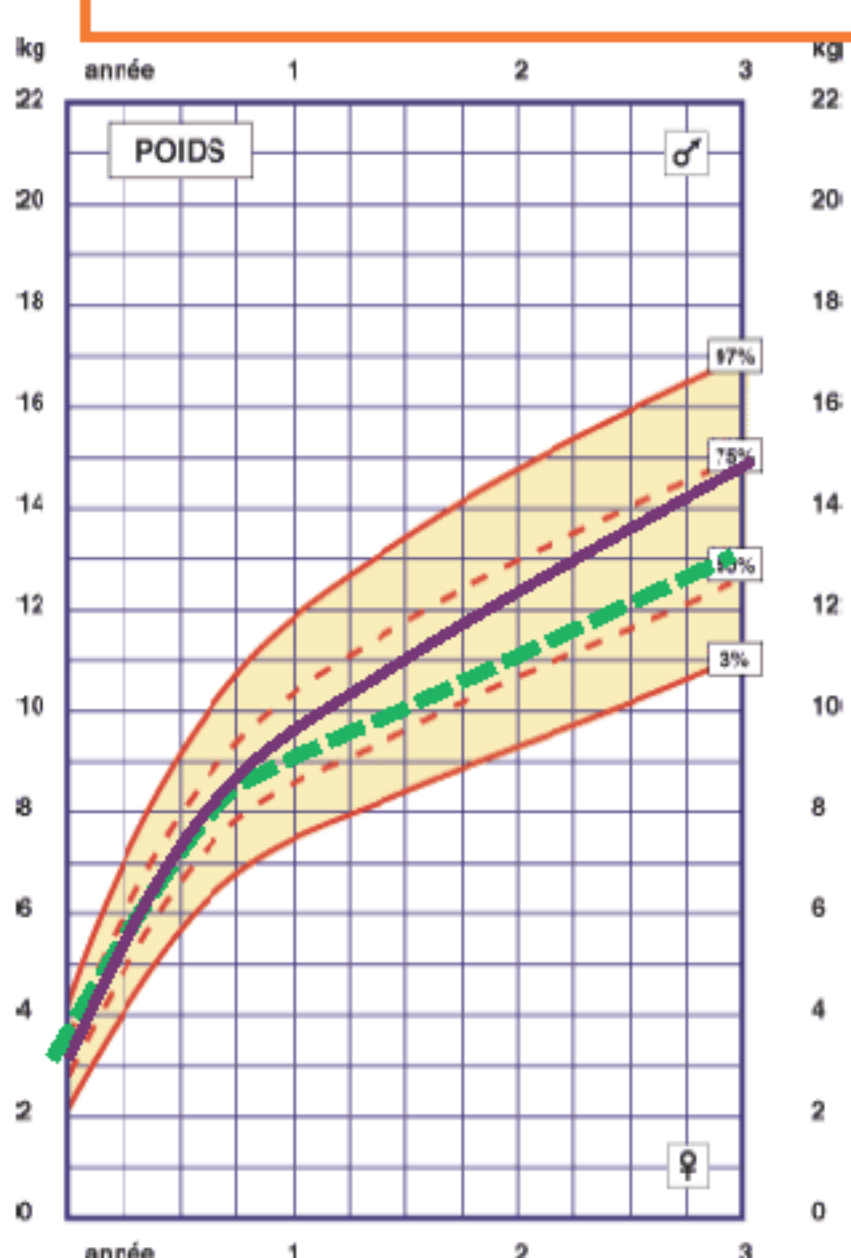
Events during pregnancy were similar in both groups, including incident gestational diabetes mellitus, maternal gestational weight gain and birth weight.

### Primary endpoint

The primary objective was postnatal excess weight gain from birth to two years (weight SD 2 yrs – weight SD birth > + 0.67) which is associated with obesity in childhood

Ekelund: Am J Clin Nutr 2006; 83: 324-30; Stettler: Pediatrics 2002. 109: 194-199; Stettler: Circulation 2005; 111: 1897-03

The rate of postnatal excess weight gain was similar in both groups



→ Intention to treat (n=268; all patients, patients with non available data are considered as failure)  
→ Available data (n=206; patients with non available data are excluded)  
→ Per-protocol population (n=177; patients who have not completed the program are excluded)

Intention to treat (ITT)	Control 60.3%	ETOIG 59.1%	NS
Available data (AD)	Control 48.1%	ETOIG 47.1%	NS
Per protocol (PP)	Control 50.0%	ETOIG 45.8%	NS

### Secondary endpoints

Children's feeding habits didn't significantly differ between both groups

Overweight was less likely to occur in the interventional group

### for the children

BMI > 97<sup>th</sup> perc of the French BMI curve

ITT	Control 29,4%	ETOIG 23,5%	p=0.27
AD	Control 6,8%	ETOIG 0%	p=0.014
PP	Control 6,4%	ETOIG 0%	p=0.03

### for the mothers

BMI < 25 for the mother at year 2

ITT	Control 2,2%	ETOIG 6,8%	p=0.07
AD	Control 3,8%	ETOIG 12,9%	p=0.042
PP	Control 4,2%	ETOIG 10,7%	p=0.18

## CONCLUSION

An intervention based on patient collective therapeutic education for overweight pregnant women, starting at more than three months of gestation, has no effect on postnatal excess weight gain but seems to prevent overweight in mothers and children two years after delivery.

