Concerning the Article by De Zegher et al. [1]

Consequences of the Sex Difference in Rates of Fetal Growth

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De Zegher et al. [1] note that male fetuses grow faster than females. This being so, a higher proportion of them may reach developmental windows too early and consequently may be programmed for postnatal susceptibility to disease.

I wish to make two points in connection with this hypothesis:

(1) The authors write as if a difficulty were posed by the facts that in the male fetus, serum testosterone reaches a peak before mid-gestation, while maximum weight gain occurs in late gestation. These facts would pose no difficulty if – as seems likely – weight gain (expressed e.g. in grams per day) were dependent not only on testosterone level, but on *current weight*.

(2) However, complexity is introduced by the good evidence that within a fruitful cycle, the regression of p (the probability that a conceptus is male) is U-shaped across the

fertile interval, that period of time during the cycle when a woman *can* conceive. In other words, if a woman conceives early or late in this interval, she is more likely to have a boy: and if she conceives in the centre of that interval, she is more likely to have a girl [2]. I have suggested that the reason for this is that the sexes of offspring are dependent (inter alia) on maternal hormone levels at the time of conception [3]. However, it is irrelevant to the present argument whether that hypothesis is true. The crucial point is that if the U-shaped regression exists, it suggests another possibility. If the subsequent developmental window is temporally related to ovulation, rather than conception, male fetuses are *bound* to be more likely to be suboptimally timed in relation to that window. For this reason it is important to assess the evidence for (a) that hypothesized U-shaped regression and (b) the time origin of the window.

References

- 1 De Zegher F, Devlieger H, Eeckels R: Fetal growth: Boys before girls. *Horm Res* 1999;51: 258–259.
- 2 James WH: The status of the hypothesis that offspring sex ratio is associated with the cycle day of conception. *Hum Reprod* 1999;14: 2177–2178.
- 3 James WH: Evidence that mammalian sex ratios at birth are partially controlled by parental hormone levels at the time of conception. *J Theor Biol* 1996;180:270–286.