



## Ovarian stimulation using step-down: safety, efficacy and outcome

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Step down is a safe and effective technique for ovarian stimulation prior to IVF, associated with low rates of ovarian hyperstimulation, and high rates of implantation for both fresh and frozen/thawed embryos.

Follicle recruitment is optimised by the appropriate starting dose of gonadotrophin.

The dose of gonadotrophin is reduced from the mid to late follicular to restrict further follicular recruitment.

Restricting recruitment of a second cohort of follicles reduces both heterogeneity of the population of follicles at oocyte collection and the risk of hyperstimulation.

We present data from 654 IVF cycles commenced. The live birth rates with step-down were similar for urinary and recombinant gonadotrophin preparations. The mean duration of stimulation (10.3 days), total gonadotrophin used (39.7 ampoules), peak oestradiol on the day of hCG (7114 pmol/l), number of eggs retrieved (11.5), fertilization rates (63.2%) and number of embryos transferred (2.0) were similar for urinary and recombinant preparations. There were 119 live births from 654 cycles giving a live birth rate of 18.2%. The amount of gonadotrophin used increased with advancing female age.

The live birth rate was highest in the youngest group with the lowest gonadotrophin requirements (<30 years 30%, 30-34 years 18%, 35-39 years 14%, >40 years 4%). The implantation rate per embryo was 16.2% across all age groups and 12.9% for frozen thawed embryos. Moderate to severe ovarian hyperstimulation syndrome occurred in seven women, all within the first three months of the study. Five of these women conceived resulting in a live birth.

These data show that step down generates a high number of competent embryos for replacement and cryopreservation and it appears that it is the stimulation protocol rather than the gonadotrophin preparation which is important for embryo quality. Premature birth resulting from multiple pregnancy remains a major risk to the long term health of babies conceived from IVF. The high implantation rate associated with step down should enable us to consider the transfer of a single embryo in younger women.

