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Individual demands of human embryos on IVF culture medium: influence on blastocyst development and pregnancy outcome

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Abstract
The elucidation of the metabolic requirements of human embryos in vivo or in vitro remains, dispite being intensively investigated, a work in progress. The adoption of extended embryo culture to the blastocyst stage during the last decade has entailed new challenges. With the increased attention to culture media formulations, more evidence on the sensitivity of embryos to their early environmental conditions is accumulating which might affect phenotype and developmental potential. A retrospective study was conducted that comprised 286 IVF cycles to evaluate the effect of two different culture media on blastocyst development and pregnancy outcome. Embryos were either cultured in a one Stepp or a sequential medium. Higher fertilization rates and augmented blastocysts as well as higher implantation rates were observed when embryos were cultured in one Stepp medium ($p < 0.05$). Interestingly, the transfer of two embryos where one embryo was cultured in either medium resulted in a significantly higher rate of twin pregnancies. Although multiple pregnancies should be avoided in assisted reproduction treatment to reduce risks for offspring and mother, this higher ferquency of twin pregnancies resulting from the transfer of embryos derived from different culture media suggests that each embryo makes individual demands on ist early enviroment.