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Survival Ability of Pig Embryos Frozen-Thawed by Open Pulled Straw Methods

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The purpose of this is to investigate the effects of vitrification in open pulled straws (OPS) on *in vitro* survival of porcine embryos. Blastocysts were produced by *in vitro* fertilization of slaughterhouse-derived, *in vitro* matured oocytes with frozen-thawed boar semen, and subsequent culture on granulosa cell monolayer. After frozen-thawing, embryos were culture in NCSU-23 medium with 5 mM hypotaurine, 4 mg/ml BSA and 10 ng/㎖ for 48 hrs to survival tests. When blastocysts were frozen-thawed by OPS methods, the embryos with normal morphology were 32.1, 34.5 and 38.9 % in early blastocyst, blastocyst and expanded blastocyat stages. The rates of partial damaged embryos were significantly ($P<0.05$) higher in early blastocysts than expanded blastocysts. In another experiment, the embryos forzen by OPS methods were cultured for 48 hrs for survival and developmental rates *in vitro*. The proportions of embryos hatched were 11.8, 20.2 and 33.3% in embryos frozen-thawed at stages of early blastocyst, blastocyst and expanded embryos. On the other hand, The proportions of embryo with normal morphology after culture were 23.5, 25.0 and 33.3% in embryos frozen-thawed at stages of early blastocyst, blastocyst and expanded embryos. These finding indicate the possible broader application for OPS methods that this procedure described is relatively harmless, that it can be used for blastocysts of different developmental stages.

Key words) ***Pig, OPS methods, Survival ability, Blastocysts, In vitro***