Lowering Perfusate Temperature from 37°C to 32°C Diminishes Function in a Porcine Model of Ex-Vivo Kidney Perfusion

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Ex-Vivo Perfusion (EVP) is a new technique for assessing, conditioning, and treating marginal donor kidneys. It aims to increase kidney transplantation following donation after cardiac death (DCD).^{1,2}

EVP **conditions** transplant kidneys through restoration of *oxidative metabolism* and induction of *cytoprotective* mechanisms.

Lowering temperature (30-35°C) may protect against ischaemic damage in renal injury^{3,4} and during EVP⁵.

We investigated the effect of **sub-normothermic** temperature upon **Kidney function** *during* and *after* EVP and upon **Reperfusion injury** *following* EVP.

Model of Porcine DCD Kidney Retrieval and Storage

Group	Circuit temperature (°C)	Number
EVP Near - Normothermia	37.0	6
EVP Sub - Normothermia	32.0	6
Control	N/A	6

EX-VIVO PERFUSION

Function

REPERFUSION

Function

Reperfusion injury

References

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Conclusions:

During EVP:

Near-normothermia is superior to sub-normothermia for:

- Restoration of oxidative metabolism
- Restoration of renal function

During Reperfusion:

Near-normothermia is superior to sub-normothermia for:

- Reduction of reperfusion injury
- EVP at either temperature was superior to Cold Storage