

Supplementary material

Supplemental Table 1. Detail of search strategy.

Database	Detail	Result
PubMed	(storage time) AND (embryo) Filters: Humans;	430
Embase	(storage AND time) AND (embryo) AND [humans]/lim	301
Medline	(TX storage time) AND (TX embryo) AND limiters: human	32
CCRT	(storage time) AND (embryo)	27

Supplemental Table 2. OR or RD for participants in studies included in dose-response meta-analysis on storage time and pregnancy outcomes.

Storage time (month)	Survival rate OR (95% CI)	Implantation rate OR (95% CI)	Clinical pregnancy rate OR (95% CI)	Miscarriage rate OR (95% CI)	Live birth rate OR (95% CI)	congenital malformation rate RD(95% CI)
Ueno (2018)						
0-2	1.00 [0.72, 1.39]	NA	1.00 [0.92, 1.08]	1.00 [0.88, 1.14]	1.00 [0.92, 1.09]	0.00 [-0.01, 0.01]
2-13	0.88 [0.61, 1.27]	NA	0.92 [0.84, 1.01]	1.11 [0.95, 1.29]	0.90 [0.81, 0.99]	-0.00 [-0.01, 0.01]
13-97	0.42 [0.28, 0.61]	NA	0.89 [0.78, 1.02]	1.00 [0.81, 1.25]	0.91 [0.80, 1.04]	-0.00 [-0.02, 0.01]
Li (2017)						
1-3	1.00 [0.35, 2.89]	1.00 [0.70, 1.42]	1.00 [0.63, 1.58]	1.00 [0.39, 2.57]	1.00 [0.63, 1.59]	0.00 [-0.04, 0.04]
4-6	0.62 [0.26, 1.46]	0.94 [0.69, 1.27]	0.89 [0.60, 1.32]	2.07 [0.96, 4.50]	0.72 [0.48, 1.09]	0.01 [-0.03, 0.05]
7-12	0.84 [0.33, 2.12]	0.66 [0.47, 0.92]	0.83 [0.54, 1.27]	1.76 [0.76, 4.07]	0.72 [0.46, 1.12]	-0.00 [-0.04, 0.04]
13-24	1.52 [0.44, 5.24]	0.62 [0.42, 0.92]	0.85 [0.51, 1.43]	2.36 [0.92, 6.07]	0.66 [0.39, 1.13]	-0.01 [-0.06, 0.03]
25-60	0.98 [0.25, 3.86]	0.66 [0.40, 1.08]	0.98 [0.51, 1.90]	2.29 [0.72, 7.24]	0.75 [0.38, 1.50]	0.04 [-0.06, 0.14]
Liu (2014)						
12-23	1.00 [0.84, 1.19]	1.00 [0.76, 1.31]	1.00 [0.74, 1.35]	1.00 [0.47, 2.13]	1.00 [0.74, 1.36]	NA
24-35	1.15 [0.95, 1.38]	1.02 [0.78, 1.33]	0.96 [0.70, 1.32]	1.86 [0.90, 3.83]	0.84 [0.61, 1.17]	NA
36-47	1.22 [0.94, 1.59]	1.20 [0.85, 1.71]	1.24 [0.81, 1.92]	2.12 [0.88, 5.08]	1.02 [0.65, 1.59]	NA
>48	0.92 [0.72, 1.18]	1.09 [0.76, 1.56]	1.09 [0.70, 1.70]	1.11 [0.38, 3.26]	1.06 [0.67, 1.68]	NA
Wirleitner (2013)						
0-3	1.00 [0.67, 1.49]	1.00 [0.62, 1.60]	1.00 [0.57, 1.76]	1.00 [0.32, 3.17]	1.00 [0.55, 1.80]	0.00 [-0.04, 0.04]
3-6	1.82 [1.22, 2.70]	0.79 [0.51, 1.21]	0.65 [0.39, 1.09]	0.40 [0.11, 1.48]	0.78 [0.46, 1.34]	0.00 [-0.04, 0.04]
6-12	1.10 [0.73, 1.66]	0.73 [0.45, 1.20]	0.75 [0.42, 1.34]	0.84 [0.24, 2.95]	0.80 [0.44, 1.47]	0.00 [-0.05, 0.05]
12-24	0.93 [0.62, 1.40]	1.04 [0.64, 1.70]	0.76 [0.42, 1.37]	0.16 [0.02, 1.35]	0.98 [0.54, 1.80]	0.03 [-0.04, 0.10]
24-36	0.92 [0.61, 1.39]	1.40 [0.87, 2.27]	1.37 [0.77, 2.44]	1.08 [0.35, 3.30]	1.29 [0.71, 2.34]	0.00 [-0.05, 0.05]
36-48	1.47 [0.75, 2.86]	1.43 [0.71, 2.87]	1.03 [0.43, 2.45]	0.19 [0.01, 3.67]	1.40 [0.58, 3.34]	0.08 [-0.09, 0.26]
48-72	1.01 [0.53, 1.92]	1.30 [0.61, 2.77]	0.94 [0.39, 2.27]	2.02 [0.42, 9.80]	0.75 [0.29, 1.96]	0.00 [-0.14, 0.14]
Aflatoonian (2013)						
0-3	NA	1.00 [0.69, 1.44]	1.00 [0.63, 1.59]	NA	NA	NA
3-12	NA	0.94 [0.68, 1.31]	0.87 [0.57, 1.34]	NA	NA	NA
12-24	NA	0.92 [0.58, 1.46]	1.13 [0.64, 1.98]	NA	NA	NA
24-36	NA	0.76 [0.38, 1.52]	0.81 [0.33, 2.00]	NA	NA	NA
>36	NA	0.89 [0.41, 1.92]	1.70 [0.70, 4.10]	NA	NA	NA

Ashrafi (2002)

≤6	NA	1.00 [0.61, 1.65]	1.00 [0.55, 1.83]	NA	NA	NA
>6	NA	1.53 [0.94, 2.50]	1.50 [0.82, 2.76]	NA	NA	NA

Riggs (2010)

1-3.3	NA	NA	NA	NA	1.00 [0.52, 1.92]	NA
3.3-12	NA	NA	NA	NA	1.18 [0.64, 2.17]	NA
12-24	NA	NA	NA	NA	1.18 [0.51, 2.77]	NA
24-36	NA	NA	NA	NA	1.09 [0.47, 2.54]	NA
>36	NA	NA	NA	NA	1.95 [1.00, 3.84]	NA

Supplemental Table 3. Newcastle-Ottawa scale for study quality

study	selection				Comparability*	outcome			total score
	1	2	3	4		1	2	3	
Ueno (2018)	☆	☆	☆		☆☆	☆	☆		7
Li (2017)	☆	☆	☆		☆		☆		5
Liu (2014)	☆	☆	☆		☆		☆		5
Wirleitner (2013)	☆	☆	☆		☆☆		☆		6
Aflatoonian (2013)	☆	☆	☆		☆		☆		5
Ashrafi (2011)	☆	☆	☆		☆		☆		5
Riggs (2010)	☆	☆	☆		☆		☆		5

Selection contains: 1.exposed cohort; 2.nonexposed cohort; 3.ascertainment of exposure; 4.outcome of interest.

Outcome contains: 1.assessment of outcome; 2.length of follow-up; 3.adequacy of follow-up.

*The two most important confounders: oocyte retrieval maternal age and cryopreservation technique.