Annotated bibliography of studies in the meta-analysis
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   • This is a randomized clinical trial (RCT) lasting 6 cycles. Randomization was by a random number table with discarding of those sequences with strings of 3 consecutive cycles of same treatment. This is the only study in which the method of randomization was specified. Fresh and frozen cycles used the same donor (5 exceptions). Minimum criteria for fresh semen were total count > 60 million/ml (CT = 60), total motility > 60% (MT = 60), progressive motility > 30% (PMT = 30).
   • There is a graph but no table of life table data. The raw data, however, is available to EJL. For the meta-analysis, data of table I was used to calculate cycle fecundity.
   • There were 15 repeat courses (72 courses in 57 women). A better design would be to restrict analysis to the first treatment or to stratify in the analysis.

   • This is a randomized clinical trial in which all cases were severe male factor infertility, CT < 1 million/ml. Minimum criteria for fresh semen were CT = 60, MT = 60, Normal morphology > 60%. A constant volume of 1 ml was used for both fresh and thawed.
   • Data of Tables I and II were used to prepare a life table from which cycle fecundity was calculated.

   • This is a randomized clinical trial with randomization at each cycle. Used a constant volume, 2 ml (minimum CT = 20). There were 55 donors.
   • Data of Table 4 used to calculate cycle fecundity. No life table data. Used Mantel & Byer method (cites Olive D. Fertil Steril 1986;45:157). This is appropriate when subjects transfer to other group after spending some time in the first group (transplantation after being on waiting list, adoption, medical and surgical therapy for endometriosis).

   • The first cycle was randomized and subsequent cycles alternated between fresh and frozen. Cross over designs in which pregnancy is the outcome are especially controversial.
Totals from Table 1 were used for estimating the cycle fecundity for meta-
analysis. The values in Table 1 do not compute correctly for a life table when
summed from bottom up.

5. Richter M, Haning RV, Shapiro SS. Artificial donor insemination: fresh versus
frozen semen; the patient as her own control. Fertil Steril 1984;41:277-80
- The first cycle was randomized and subsequent cycles alternated between fresh
and frozen. Cross over designs in which pregnancy is the outcome are especially
controversial.
- This is an earlier study by the same group of investigators as in Brown, above.
The time is from 1976 to 1982 and the minimum criteria are less stringent:
CT=60, MT=60, post thaw motility > 50% of initial motility.

and timing of insemination on the success of artificial insemination donor (AID) with
- We used data of Table 4 to calculate cycle fecundity.
- Data in Table 1 does not compute correctly from bottom up.
- Assignment to fresh or frozen was dependent on availability of fresh donor.

7. Schoysman-Deboeck A, Schoysman R. Clinical comparison of fresh and frozen
semen. Page 295-300 in David G and Price WS editors, Human Artificial
Insemination and Semen Preparation. Plenum Press, 1980 AND Schoysman-
Deboeck A, Merckx M, Segal L, Vekemans M, Verhoeven N. Results of AID in 865
Couples, Ibid, Page 231-47.
- Data on clinical factors listed in our table are from the second citation. We
used data of Table 2 in the first citation to construct a life table limited to 12
months from which we calculated cycle fecundity.
- Fresh semen was used whenever possible and frozen used if there was no
fresh semen available.
- Minimum criteria for fresh semen were CT = 80, MT=70. Post thaw CT and
MT were about half that of fresh.

8. Bordson BL, Ricci E, Dickey RP, Dunaway H, Taylor SN, Curole DN. Comparison
of fecundability with fresh and frozen semen in therapeutic donor insemination.
Fertil Steril 1986;46:466-9
- We used data in Table 2, excluding cycles in which both fresh and frozen
were employed, to calculate cycle fecundity. Numbers in Table 1 do not
compute correctly when calculated from the bottom up.
- Minimum criteria for fresh semen were CT = 60, MT=60. For post-thaw
CT=40, MT=30 (Motile count = 12)

9. Jackson MCN, Richardson DW. The use of fresh and frozen semen in human
- We used data of Table 1 to calculate cycle fecundity.
This study covers a 40 year period. Tubal patency was determined after 3-4 failed cycles.

   • We used data from Tables 6 and 7 used to construct life tables for calculating cycle fecundity.

   • This pair of papers covers the period 1984-1987 for fresh and 1987-88 for frozen.
   • Minimum criteria for fresh semen were CT = 80, MT=60, Normal morphology > 60%. For frozen semen the pre-freeze motility was >70%. A hysterosalpingogram was done after 3 failed cycles and laparoscopy after 6.
   • We combined data from LH and BBT monitoring groups (from Table 1 of first paper and Table 2 of second paper) and constructed 6 cycle life tables from which we calculated cycle fecundity.

   • We used data of Table II to construct the life tables from which cycle fecundity was calculated. Cycles beyond the 10th were omitted.
   • Fresh was used from 1970 to 1987, usually with 2 inseminations; frozen from 1988-90, usually with better timed single insemination. Women who were having inseminations at the time of the switch to frozen were included only in the fresh group.
   • More women using frozen were over 35 years old, 46%, than women using fresh, 22%.
   • Data included 153 repeat fresh treatments and 2 repeat frozen treatments, presumably after a pregnancy. A treatment could include multiple insemination cycles. A better design would be to restrict analysis to the first treatment or to stratify in the analysis.

   • We used data in Table 1 (number of cycles) and in the Results section text (number of pregnancies) to calculate cycle fecundity.
Fresh semen was used in 1985-88 and frozen in 1988-91. LH monitoring was used predominantly in the latter period. Laparoscopy was done after 6 failed cycles.

There are duplicate treatments in both fresh (18 pregnancies among 15 women) and frozen (32 pregnancies among 27 women). A treatment could include multiple insemination cycles. A better design would be to restrict analysis to the first treatment or to stratify in the analysis.

Table 4 cites pregnancy rates with frozen semen for 3 studies (Albrecht, Aiman, and Glezerman) that report only fresh semen results.


- We used data of Table 2, combining early and late experience with frozen to compute cycle fecundity. Data in Table 1, life tables, does not compute correctly from bottom up. Authors used a modified life table method that did not include subjects who had withdrawn unless they were shown to be anovulatory in that cycle.
- Subjects who failed to conceive after 6 cycles with frozen semen were given fresh semen for 1 to 3 cycles. This treatment strategy gives a strong bias in favor of frozen! The most fertile women conceive early leaving only the relatively less fertile behind after 6 cycles to be treated with fresh semen. Despite this bias, fresh semen has slightly higher cycle fecundity.


- I did not include this in the meta-analysis because it was not possible to obtain the needed data. Data analysis in this paper is especially poor and the paper is cited here only because it is listed in the bibliography of many papers on this subject.
- Fresh semen was used only after 3 to 5 failed cycles of frozen. Fresh semen was then used when available. This treatment strategy gives a strong bias in favor of frozen! The most fertile women conceive early leaving only the relatively less fertile behind after 6 cycles to be treated with fresh semen.
- The comparison in Table IV is between women who had only frozen (cycle fecundity: 56/591 = 9.5%) and those who had both frozen and fresh (cycle fecundity: 47/383 = 12.3%).