

## Too old to inseminate?

### The effect of age on IUI results



Prof. Dr. Herman Tourmaye  
Centre for Reproductive Medicine  
Vrije Universiteit Brussel




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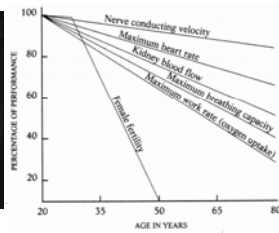
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## Effect of female age on reproduction




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## Analysis of factors influencing pregnancy rates in homologous intrauterine insemination

Gilberto Ibérico, M.D.,<sup>a</sup> Jesús Vioque, M.D., Ph.D.,<sup>b</sup> Nuria Ariza, M.D.,<sup>a</sup> Jose Manuel Lozano, M.D.,<sup>a</sup> Manuela Roca, M.D.,<sup>a</sup> Joaquín Llácer, M.D.,<sup>a</sup> and Rafael Bernabeu, M.D.<sup>a</sup>

Women's age (y)	Cycles (n)	Pregnancy (n)	Pregnancy rate (%)
<30	189	22	11.6
30-34	537	41	7.6
35-39	235	24	10.2
40-43	49	6	12.2

FERTILITY AND STERILITY®  
VOL. 81, NO. 5, MAY 2004

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**Female and male partner age and menotrophin requirements influence pregnancy rates with human menopausal gonadotrophin therapy in combination with intrauterine insemination\***

Peter R.Brzechffa and Richard P.Buyalos<sup>1</sup>

**Table I.** Pregnancy rates by age of female partner

	<35 years	35-40 years	>40 years
No. cycles	98	154	111
No. pregnancies	19	21	4
Clinical pregnancy rate (%)	19.4 <sup>a</sup>	13.6 <sup>b</sup>	3.6
Live birth rate (%)	17.3 <sup>a</sup>	10.4 <sup>c</sup>	2.7

<sup>a</sup>Age <35 years versus >40 years ( $P \leq 0.003$ ).

<sup>b</sup>Age 35-40 years versus >40 years ( $P = 0.006$ ).

<sup>c</sup>Age 35-40 years versus >40 years ( $P < 0.02$ ).

Human Reproduction vol.12 no.1 pp.29-33, 1997

**Success of intrauterine insemination in women aged 40-42 years**

Jeffrey Heebe, M.D.,<sup>a</sup> James Martin, M.D.,<sup>b</sup> Francis Tekepety, Ph.D.,<sup>c</sup>  
Ian Tummon, M.D.,<sup>d</sup> and Karen Shepherd, M.L.T.<sup>e</sup>

Age (y)	Total pregnancy rate per insemination (%)	Pregnancy loss rate (%)	Live birth rate per insemination, % (95% confidence interval)
<25	33.3	20.0	26.7 (4.3 to 49.1)
25-29	20.0	29.6	14.2 (9.6 to 18.8)
30-35	19.8	35.5	12.5 (9.8 to 15.2)
36-39	17.7	46.2	9.5 (5.6 to 13.4)
≥40	17.9	52.6	8.5 (3.2 to 13.8)

FERTILITY AND STERILITY®  
VOL. 78, NO. 1, JULY 2002

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Pregnancies and live births per year of female age ≥40 years.

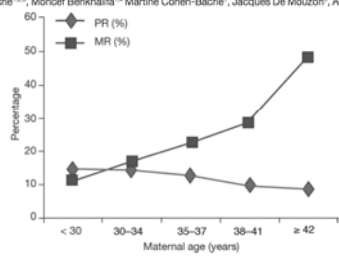
Age (y)	No. of insemination cycles	Total pregnancies	Live births
40	38	3	2
41	25	7	3
42	19	4	3
43	8	0	0
44	13	4	1
45	2	0	0
46	1	1	0

FERTILITY AND STERILITY®  
VOL. 78, NO. 1, JULY 2002

**Effect of maternal and paternal age on pregnancy and miscarriage rates after intrauterine insemination**

*Reprod Biomed Online* - Vol 17, No 3, 2008 392-397 *Reproductive BioMedicine Online*

Stéphanie Belloc<sup>1,3</sup>, Paul Cohen-Bacrie<sup>1,3</sup>, Moncef Benkhalifa<sup>1,4</sup>, Martine Cohen-Bacrie<sup>1</sup>, Jacques De Mouzon<sup>1</sup>, André Hazout<sup>1</sup>, Yves Ménézo<sup>2,3,5,6</sup>



**Figure 1.** Clinical pregnancy rates (PR) and miscarriage rates (MR) in intrauterine insemination cycles according to maternal age.

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**Effect of maternal and paternal age on pregnancy and miscarriage rates after intrauterine insemination**

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**Table 4.** Multivariate statistical analysis of the main parameters influencing pregnancy and miscarriage rates in intrauterine insemination cycles (logistic model).

Variable	Pregnancy		Miscarriage		
	Odds ratio	95% CI	Odds ratio	95% CI	
Woman's age (years)	<35	1.00	1.00	-	
	35-37	0.88	0.75-1.03	1.5	1.00-2.12
	≥38	0.67	0.56-0.80	2.31	1.58-3.38

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## IUI and age: to stimulate or?

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**NHS60**  
National Institute for  
Health and Clinical Excellence

'Where intra-uterine insemination is used to manage unexplained fertility problems, stimulated intra-uterine insemination is more effective. However, ovarian stimulation should not be offered, since it carries a risk of multiple pregnancy.'



Centrum voor  
Reproductieve Geneeskunde

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## Predictive factors for pregnancy after intrauterine insemination (IUI): An analysis of 1038 cycles and a review of the literature

Philippe Merviel, M.D., Ph.D.,<sup>a</sup> Marie Héliène Heraud, M.D.,<sup>a</sup> Nadège Grenier, M.D.,<sup>a</sup>  
Emmanuelle Lourdel, M.D.,<sup>a</sup> Pierre Sanguinet, M.D.,<sup>b</sup> and Henri Copin, M.D., Ph.D.<sup>b</sup>

<sup>a</sup> Department of Gynecology, Obstetrics and Reproductive Medicine; and <sup>b</sup> In Vitro Fertilization and Cytogenetics Laboratory, Amiens University Medical Center, Amiens, France

TABLE 2

Clinical and ongoing pregnancy rates per couple and the frequency of twin pregnancies for women in different age groups.

Age	No. of couples (%)	Clinical pregnancy/couple % (n)	Ongoing pregnancy/couple % (n)	Twin pregnancy/clinical pregnancy % (n)
≤30	135 (38.2)	44.4 (60)	38.5 (59)	20 (12) <sup>a</sup>
31–35	145 (41.2)	40 (58)	31.7 (46)	10.3 (6) <sup>b</sup>
36–40	57 (16.1)	33.3 (19)	26.3 (15) <sup>a</sup>	5.2 (1)
>40	16 (4.5)	25 (4)	12.5 (2) <sup>c</sup>	0
Total	353	39.9 (141)	34.5 (122)	13.5 (19)

<sup>a,b</sup> Indicates significant difference at  $P < .05$ .

Merviel. Pregnancy and Fertil Steril 2008.

Fertil Steril in press

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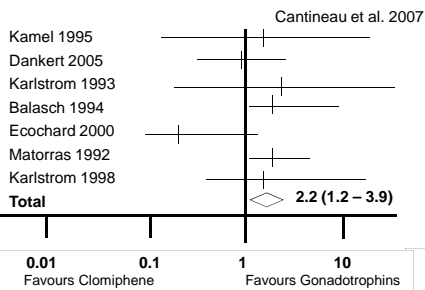
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## IUI: how to stimulate: CC vs. FSH/hMG ?

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### Ovulation induction combined with intrauterine insemination in women 40 years of age and older: is it worthwhile?

G.Corsan<sup>1,3</sup>, A.Trias<sup>2</sup>, S.Trout<sup>1</sup> and E.Kemmann<sup>1</sup>

Table II. Pregnancy rate after ovulation induction with intrauterine insemination treatment

Age (years)	No. of initiated cycles	No. of clinical pregnancies (%)	No. of spontaneous abortions (%)	No. of deliveries (%)
40	135	18 (13.3)	5 (28)	13 (9.6)
41	114	9 (7.9)	3 (33)	6 (5.2)
42	84	4 (4.8)	2 (50)	2 (2.4)
43	56	1 (1.8)	1 (100)	0 (0)
44	45	0 (0)	0	0 (0)
45	18	0 (0)	0	0 (0)
46	13	0 (0)	0	0 (0)
47	4	0 (0)	0	0 (0)
Total	469	32	11	21

Human Reproduction vol.11 no.5 pp.1109-1112, 1996

### Predictive factors for pregnancy after intrauterine insemination (IUI): An analysis of 1038 cycles and a review of the literature

Philippe Merviel, M.D., Ph.D.,<sup>a</sup> Marie Héliène Heraud, M.D.,<sup>a</sup> Nadège Grenier, M.D.,<sup>a</sup> Emmanuelle Lourdel, M.D.,<sup>a</sup> Pierre Sanguiet, M.D.,<sup>b</sup> and Henri Copin, M.D., Ph.D.<sup>b</sup>

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Total	353	39.9 (141)	34.5 (122)	13.5 (19)

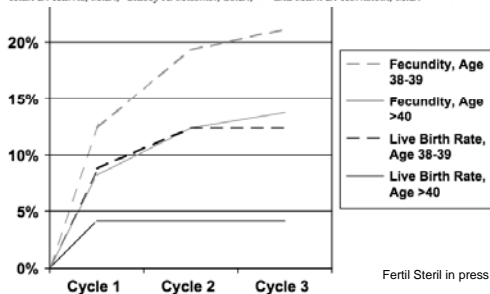
<sup>a,b</sup> Indicates significant difference at P < .05.

Merviel, Pregnancy and Fertility 2008.

Fertil Steril in press

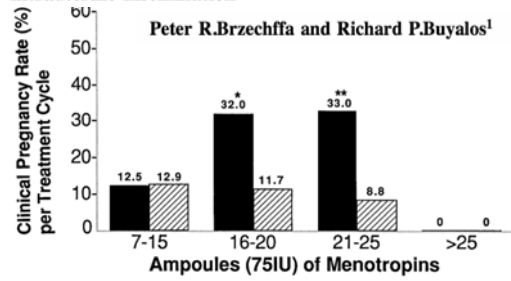
### Poor success of gonadotropin-induced controlled ovarian hyperstimulation and intrauterine insemination for older women

Isiah D. Harris, M.D.,<sup>a</sup> Stacey A. Misser, Sc.D.,<sup>a,b,c</sup> and Mark D. Hornstein, M.D.<sup>a</sup>



Fertil Steril in press

**Female and male partner age and menotrophin requirements influence pregnancy rates with human menopausal gonadotrophin therapy in combination with intrauterine insemination\***



<=35 years (solid bars) compared with women aged >=35 years between women aged <=35 years in comparison with women aged >=35 years (P = 0.02). \*\*Significant difference in the clinical

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**Intrauterine insemination in natural cycle may give better results in older women**

E. Kalu · M. Y. Thum · H. Abdalla

**Table 1** Pregnancy and live birth rate in each group

	Frequency	Pregnancy rate	Live birth rate
Natural	288	9.0% (26/288)	6.3% (18/288)
Clomid	478	12.6% (60/478)	8.2% (39/478)
Gonadotrophin	935	10.8% (101/935)	7.2% (67/935)

J Assist Reprod Genet (2007) 24:83–86

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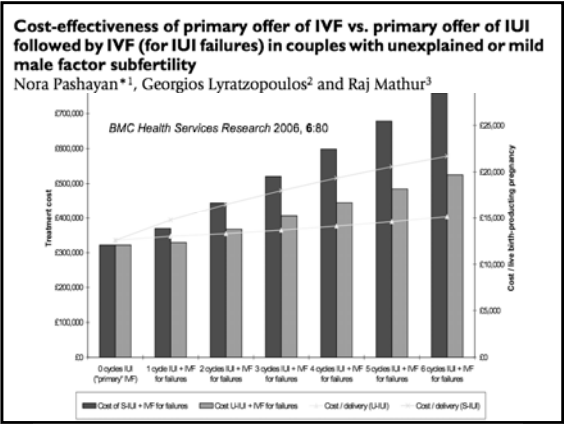
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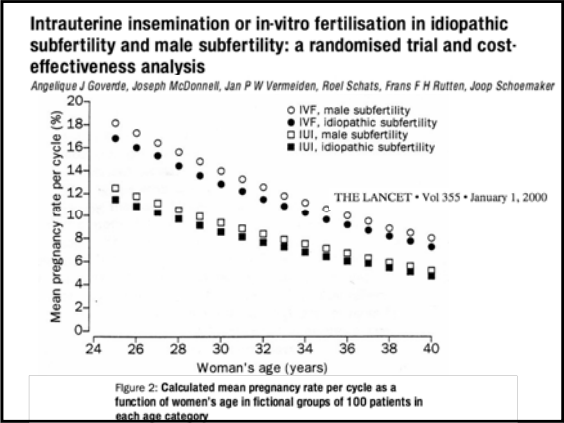
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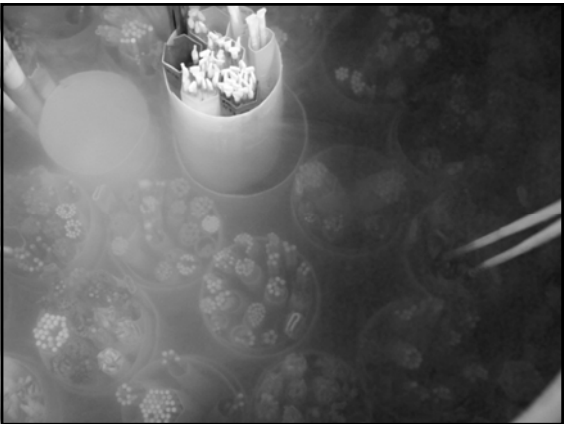
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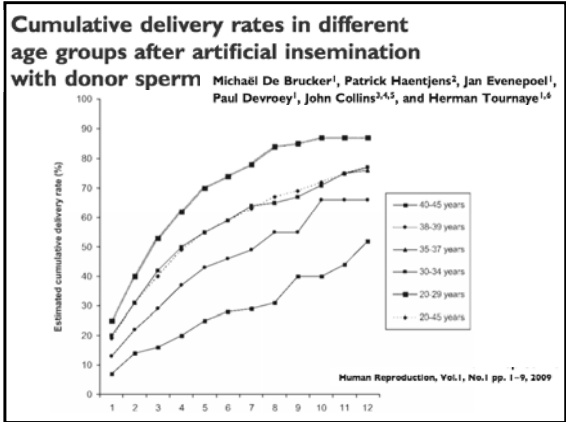
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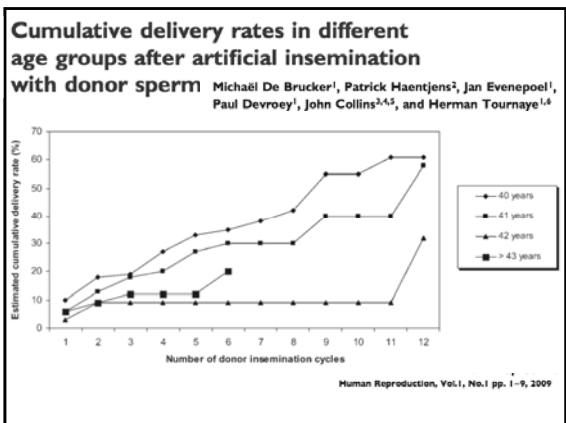
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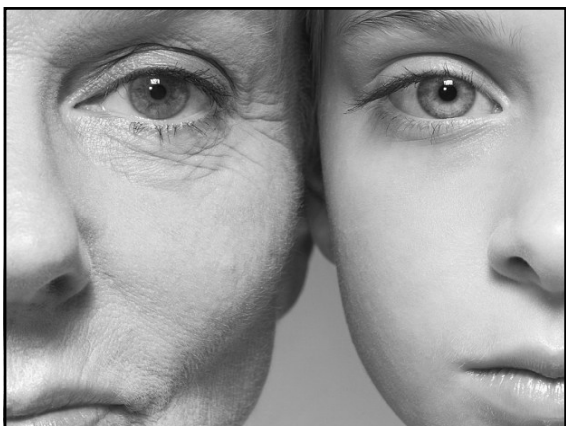
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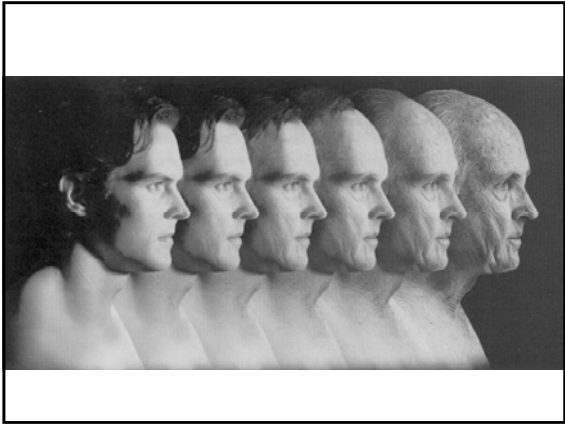
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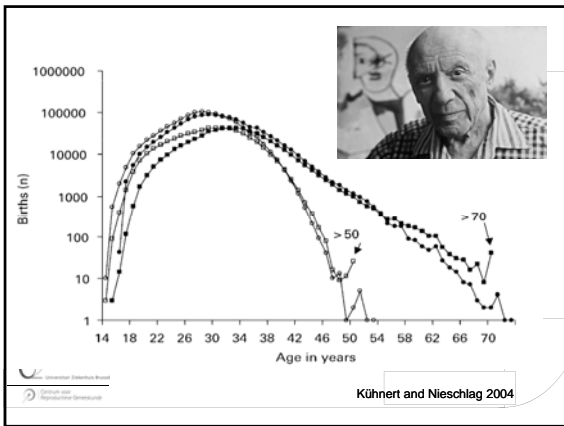
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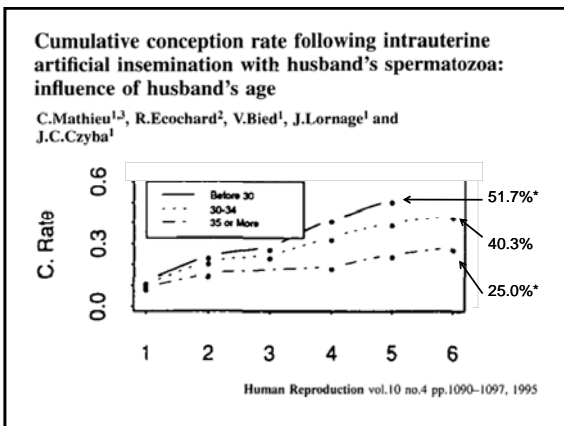
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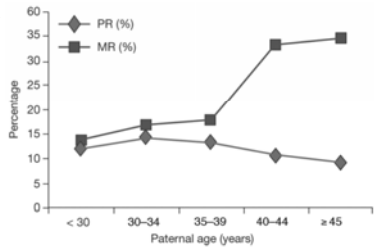
Female partner age	Male partner age	
	<40 years	≥40 years
<35	20.0 <sup>a,b</sup> (14/70)	17.9 (5/28)
≥35	16.3 <sup>c</sup> (13/80)	6.5 (12/185)

<sup>a</sup>Values represent clinical pregnancy rate (%).  
<sup>b</sup>Males <40 years versus ≥40 years when females <35 years old ( $P = 0.81$ ).  
<sup>c</sup>Males <40 years versus ≥40 years when females ≥35 years old ( $P = 0.02$ ).

Human Reproduction vol.12 no.1 pp.29-33, 1997

**Effect of maternal and paternal age on pregnancy and miscarriage rates after intrauterine insemination**

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**Figure 2.** Clinical pregnancy rates (PR) and miscarriage rates (MR) in intrauterine insemination cycles according to paternal age.

**Effect of maternal and paternal age on pregnancy and miscarriage rates after intrauterine insemination**

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 Stéphanie Belloc<sup>1,2,3</sup>, Paul Cohen-Bacrie<sup>1,2,3</sup>, Moncef Benkhaila<sup>1,4</sup>, Martine Cohen-Bacrie<sup>1</sup>, Jacques De Mouzon<sup>1</sup>, André Hazout<sup>1</sup>, Yves Ménézo<sup>2,3,4,5</sup>

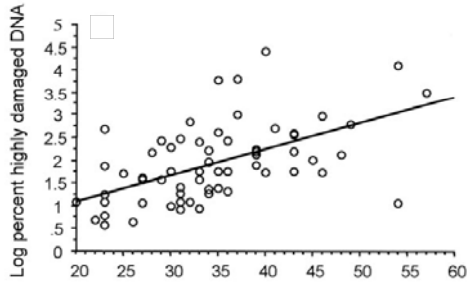
**Table 4.** Multivariate statistical analysis of the main parameters influencing pregnancy and miscarriage rates in intrauterine insemination cycles (logistic model).

Variable		Pregnancy		Miscarriage	
		Odds ratio	95% CI	Odds ratio	95% CI
Man's age (years)	<35	1.00	-	1.00	-
	35-44	0.90	0.75-1.09	1.71	1.14-2.54
	≥45	0.81	0.65-1.02	1.75	1.06-2.90

**Effects of age on DNA double-strand breaks and apoptosis in human sperm**

FERTILITY AND STERILITY®  
VOL. 89, NO. 6, DECEMBER 2007

Narendra P. Singh, M.B.B.S., M.S.,<sup>a</sup> Charles H. Muller, Ph.D.,<sup>b</sup> and



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