



Dr Mary Birdsall

Medical Director, Fertility Associates
Auckland

Do My Ovaries look Good in This? - Main Session

Sunday, 23 June 2013

Start 11:00am

Duration: 25mins

Baytrust



 **Rotorua GP CME 2013**
New Zealand Medical Association

General Practice Conference & Medical Exhibition

20-23 June 2013 | Energy Events Centre | Rotorua



FERTILITY
associates

| *a better understanding*

TE RAUHANGA O TE WHARETANGATA



Fertility Associates –
Leaders in Fertility

Do my ovaries look good in this?

Mary Birdsall

Medical Director
Fertility Associates
Auckland



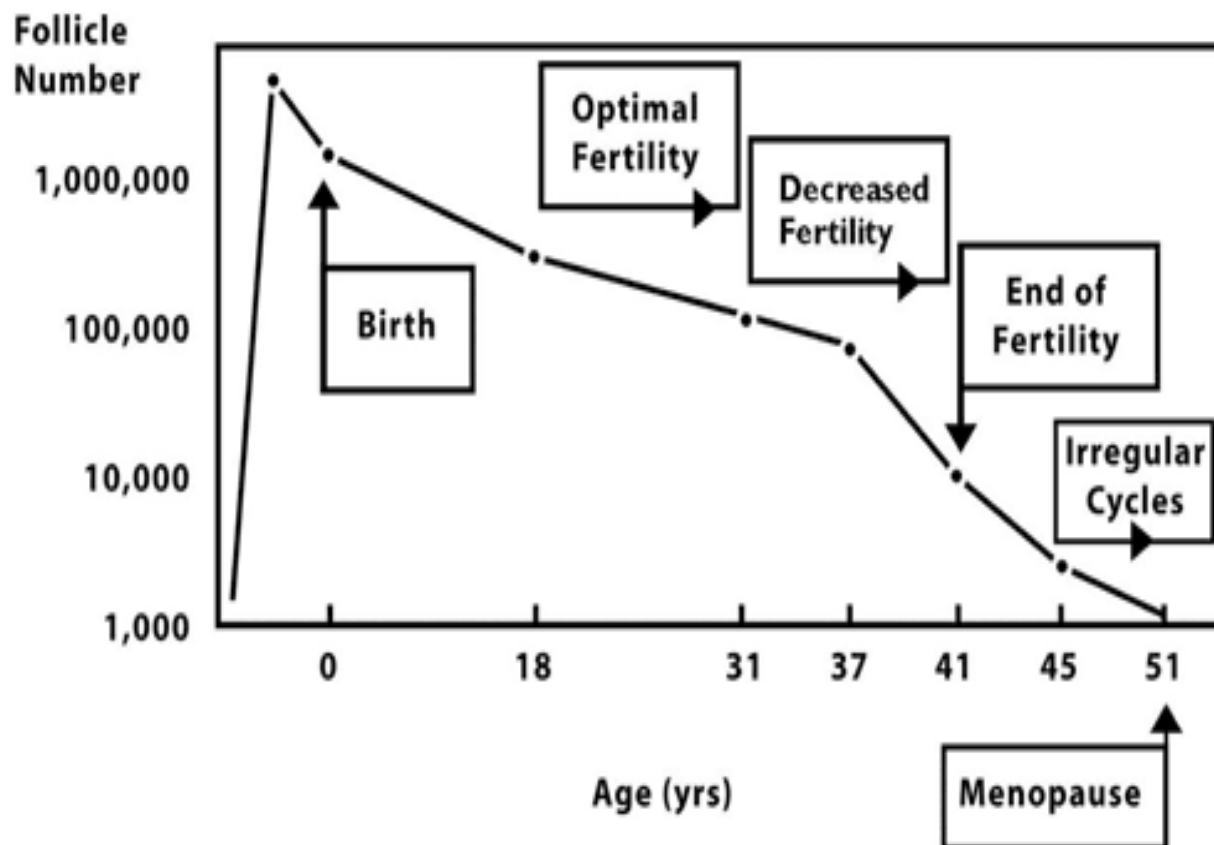
A microscopic image of an egg cell, showing a large, circular nucleus with a darker, textured interior and a lighter, granular outer layer. The nucleus is centered in the frame.

Egg Care

**Caring for your eggs so they
are able to make healthy babies**

Egg Care

- Immunisation Health
- Breast Health
- Heart Health
- Prostate Health
- Skin Health
- Egg Health



E.R. TE VELDE ET AL., 1998



FERTILITY
associates

| a better understanding
TE RAUHANGA O TE WHARETANGATA

Parents are important



Leadership ty

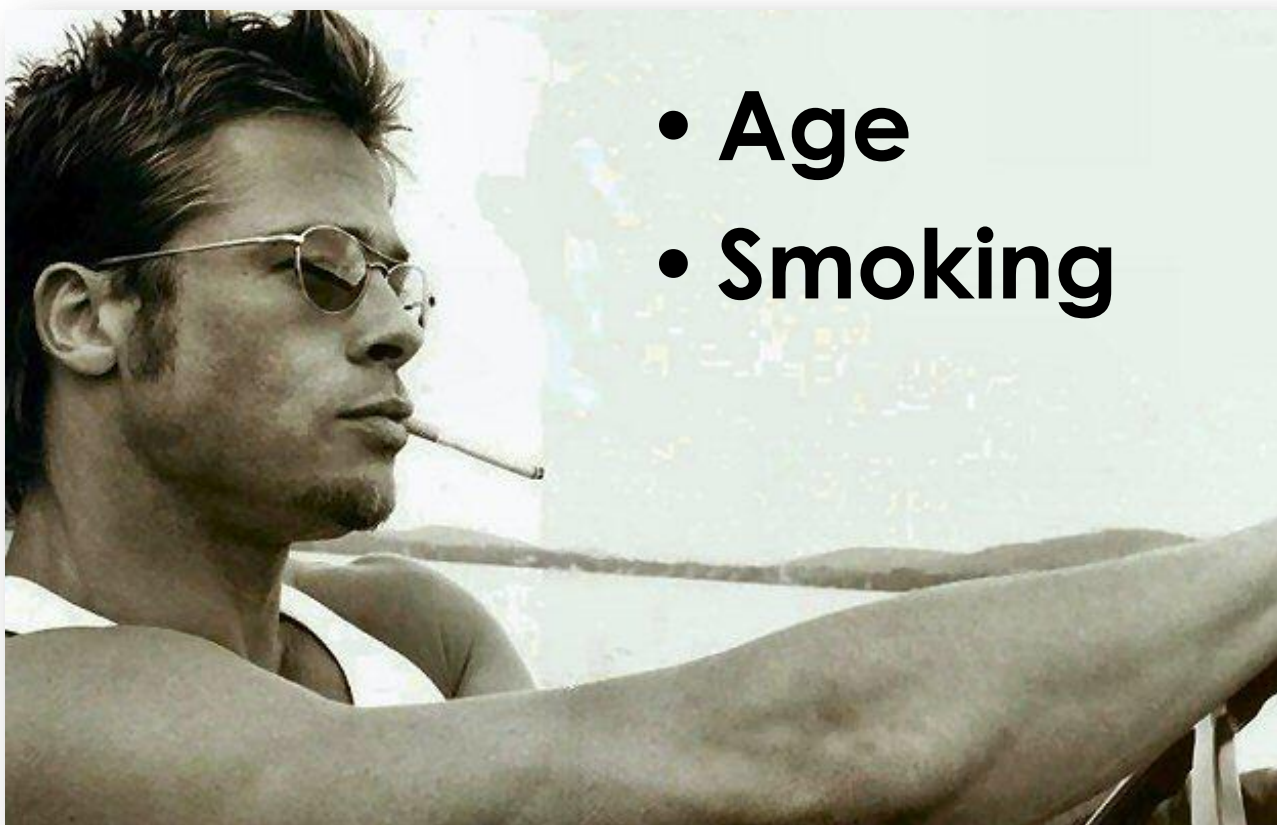


FERTILITY
associates

a better understanding

TE RAUHANGA O TE WHARETANGATA

Father



- Age
- Smoking

Leaders in Fertility



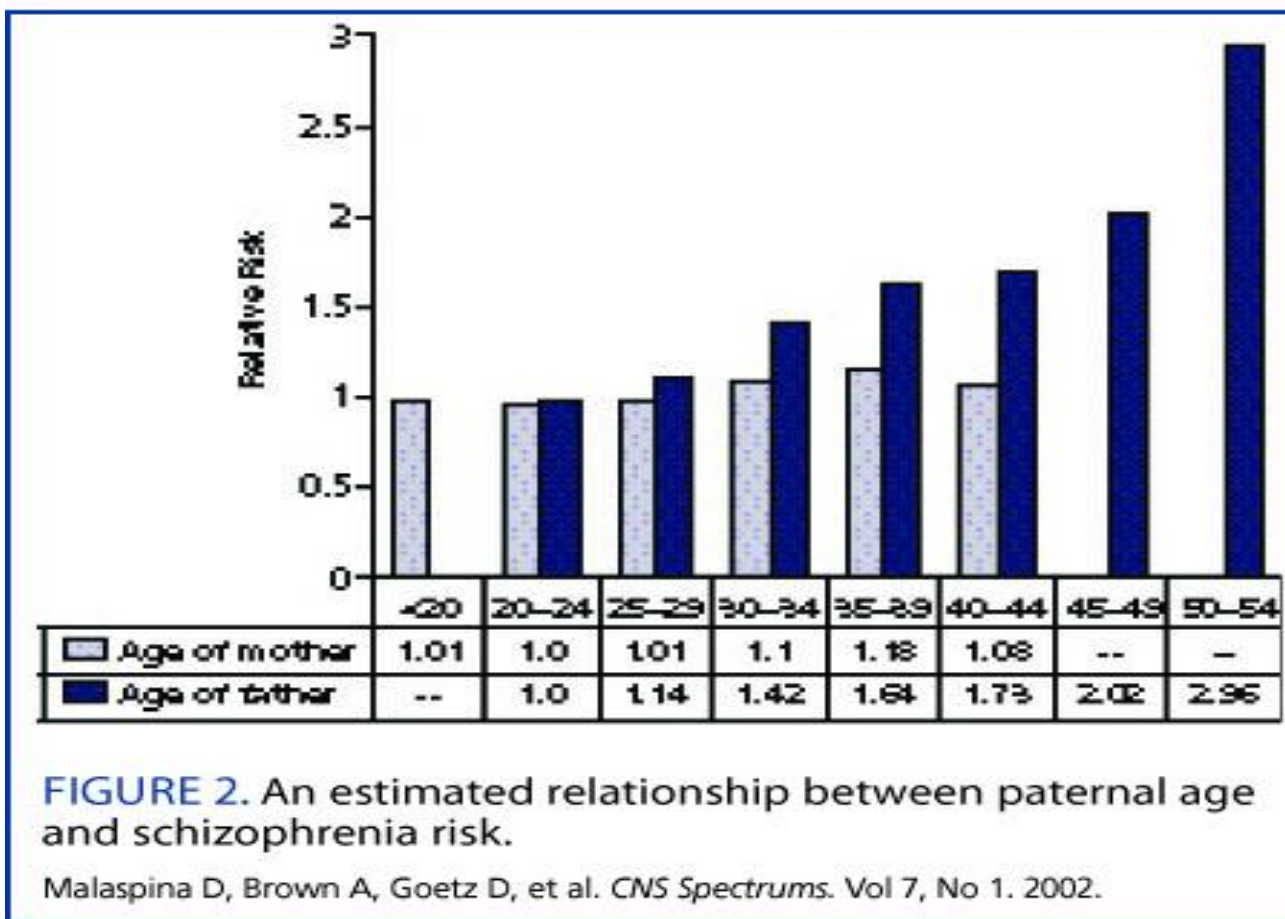
FERTILITY
associates

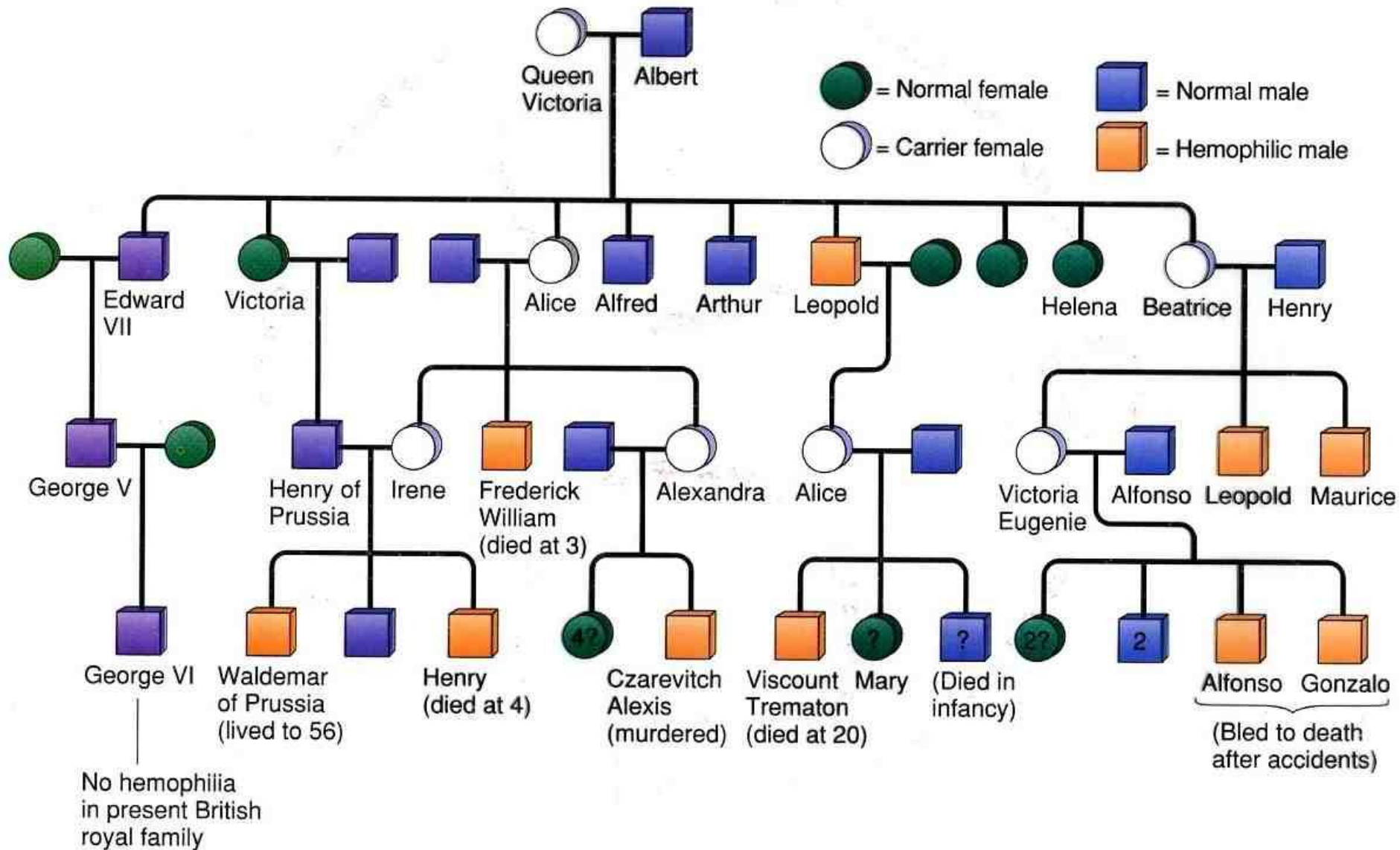
| *a better understanding*

TE RAUHANGA O TE WHARETANGATA

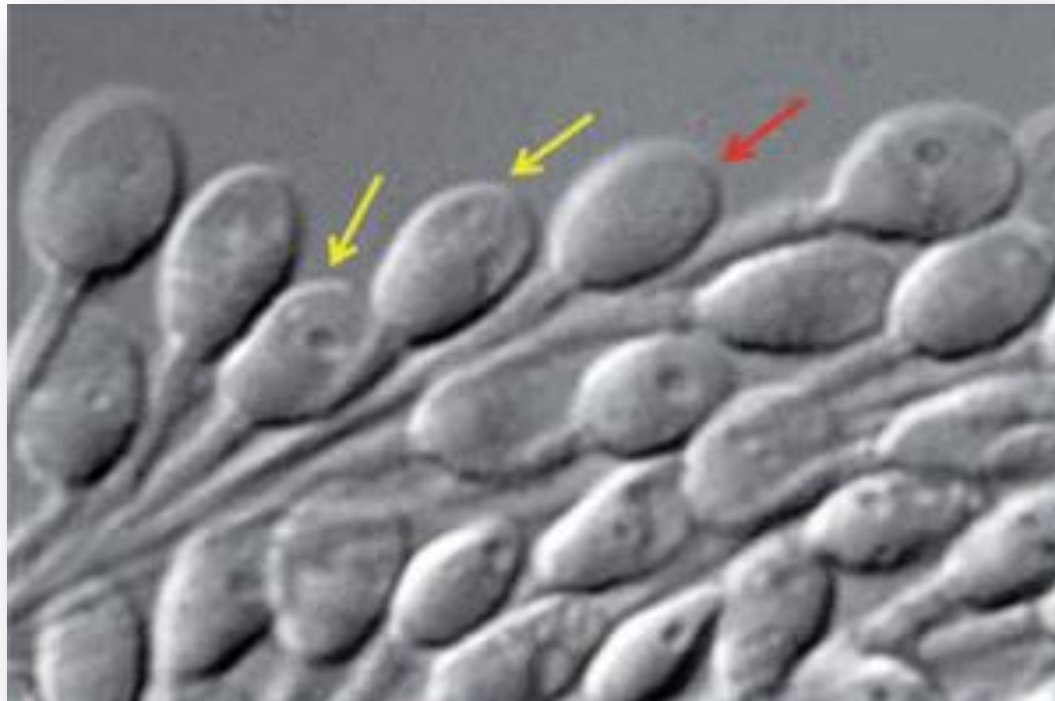


Leaders in Fertility





IMSI





Paternal Smoking

- AMH levels in 1066 15 year old girls
- Smoking in pregnancy
- Maternal 0.99 (0.87-1.14) p value 0.94
- Paternal 0.89 (0.80-0.98) p value 0.02





FERTILITY
associates

| a better understanding
TE RAUHANGA O TE WHARETANGATA

Mother

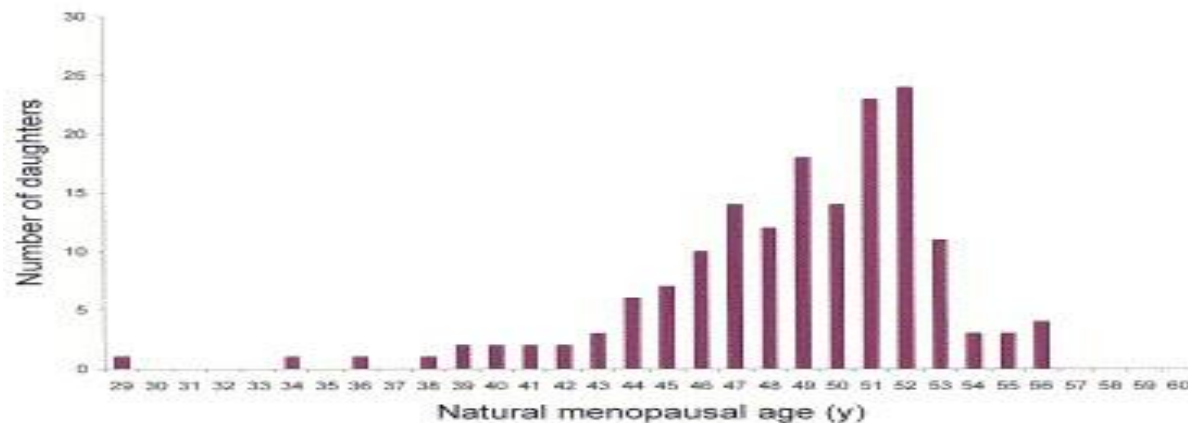
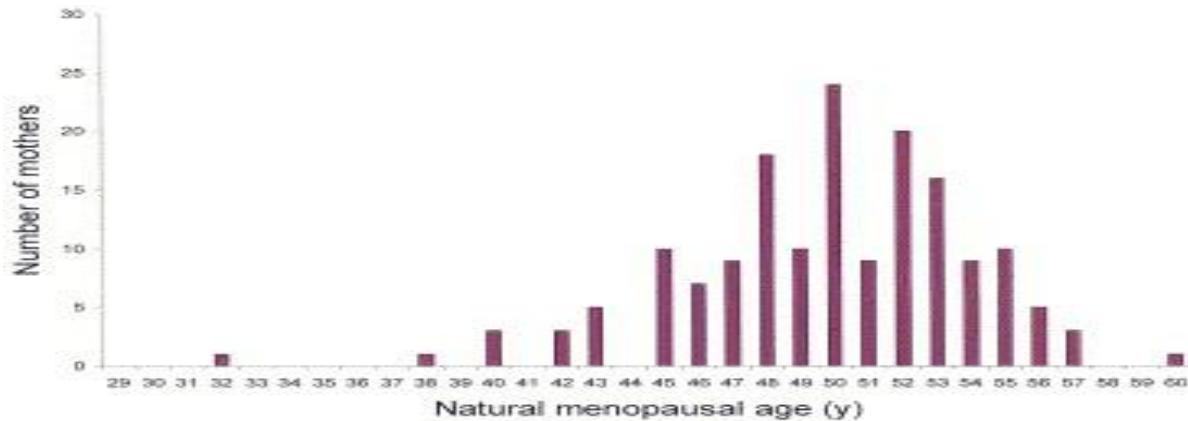
- Age
- Heritability of menopause



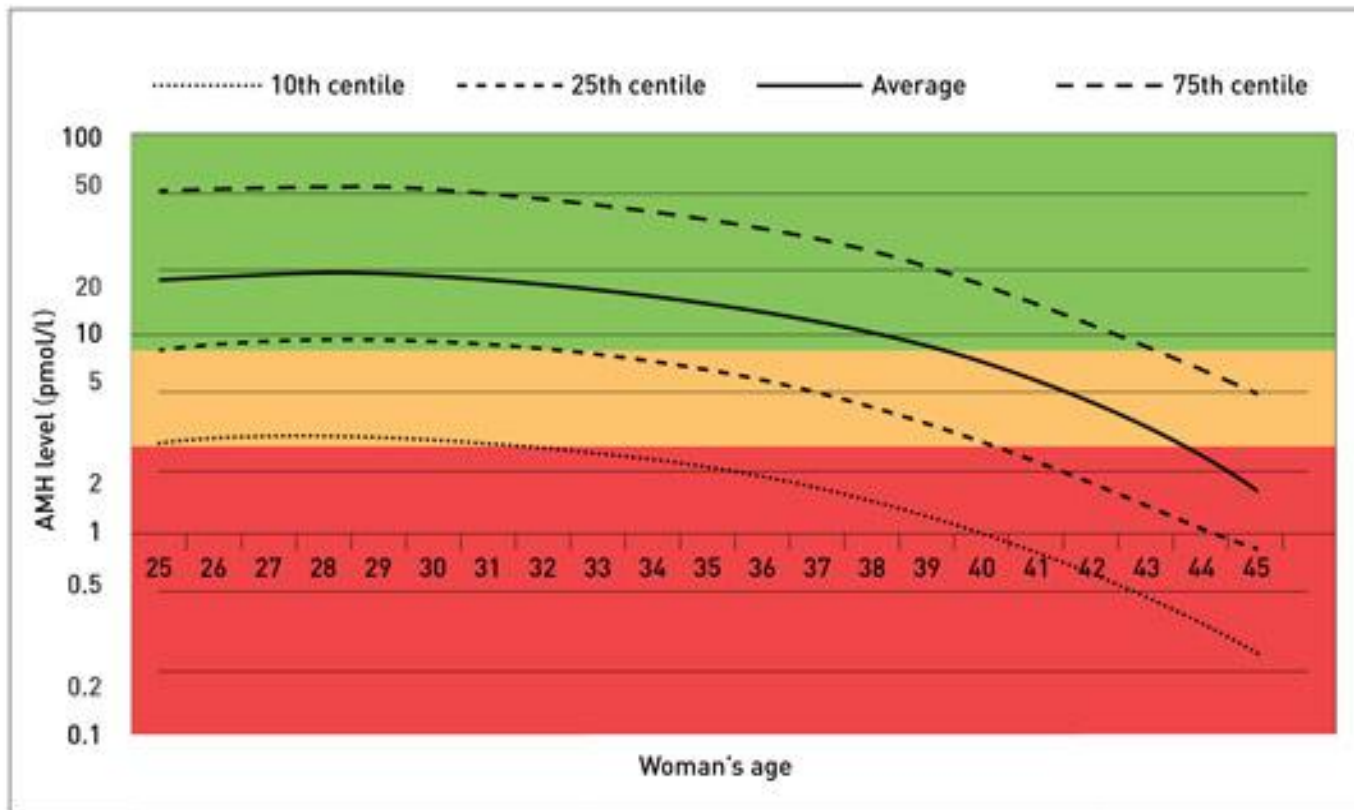
Leaders in Fertility



Heritability of Menopause (50%)



AMH





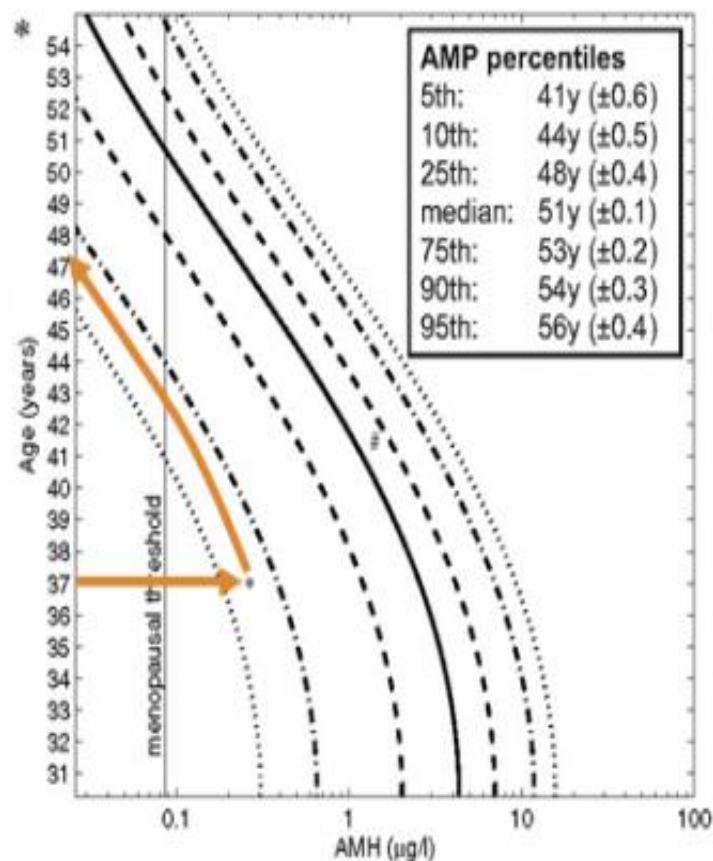
FERTILITY
associates

| *a better understanding*
TE RAUHANGA O TE WHARETANGATA

Predict Menopause

Leaders in Fertility

Relationship of Serum AMH to Age at Menopause



AMH Now †	Predicted Age at Menopause				
	5 th %	25 th %	Median	75 th %	95 th %
95 th centile	47.7	52.6	55.3	57.5	60.1
85 th centile	47.1	51.9	54.5	56.7	59.2
75 th centile	46.4	51.2	53.8	55.9	58.4
65 th centile	45.8	50.5	53.0	55.1	57.6
55 th centile	45.1	49.8	52.3	54.4	56.8
45 th centile	44.5	49.1	51.6	53.6	56.0
35 th centile	43.9	48.4	50.8	52.9	55.2
25 th centile	43.3	47.7	50.1	52.1	54.5
15 th centile	42.7	47.0	49.4	51.4	53.7
5 th centile	42.1	46.4	48.8	50.7	53.0

* van Disseldorp J et. al., J Clin Endocrinol Metab 2008

† Broer SL et. al., J Clin Endocrinol Metab 2011 (see reference for complete table)



Response to Ovarian Stimulation

	Poor response (n = 45)	Average response (n = 125)	Hyperresponse (n = 28)	Significance
Mean age (years) ±SD	34.8 ± 4.7	32.9 ± 4.4	31.6 ± 4.7	0.008*
Primary infertility vs. secondary	26 (57.8%)	81 (64.8%)	20 (71.42%)	0.481
Duration of infertility (years)	9.2 ± 5.4	7.2 ± 4.3	6.7 ± 4.7	0.035**\$
Tubal factor	17 (37.8%)	46 (36.8%)	8 (28.6%)	0.94
Male infertility	15 (33.3%)	33 (26.4%)	10 (35.7%)	0.6
Endometriosis	4 (8.9%)	10 (8.8%)	2 (7.14%)	0.94
Unexplained	8 (17.8%)	25 (20%)	5 (17.9%)	0.94
Type I surgery	7 (15.5%)	17 (13.6%)	2 (7.14%)	0.877
PID	14 (31.1%)	42 (33.6%)	7 (25%)	0.673
Mean FSH levels (IU/l)	10.2 ± 4.0	9.0 ± 3.8	7.0 ± 1.9	0.002#
Mean LH levels (IU/l)	5.1 ± 2.5	4.75 ± 2.5	5.85 ± 3.5	0.145
Mean baseline E2 levels (pg/ml)	62 ± 5.7	51 ± 2.7	47.5 ± 4.9	0.083
Mean FSH/LH ratio	2.3 ± 1.1	2.3 ± 1.3	1.6 ± 1.0	0.011#
Mean AMH levels (pmol/l)	9.1 ± 8.2	20 ± 18.1	44 ± 35.6	0.00
Mean total gonadotropin dose required (IU/l)	3572 ± 1295	2646 ± 1094	1856 ± 672	0.000
Mean terminal estradiol levels (pg/ml)	925 ± 1025	1654 ± 697	2744 ± 683	0.000

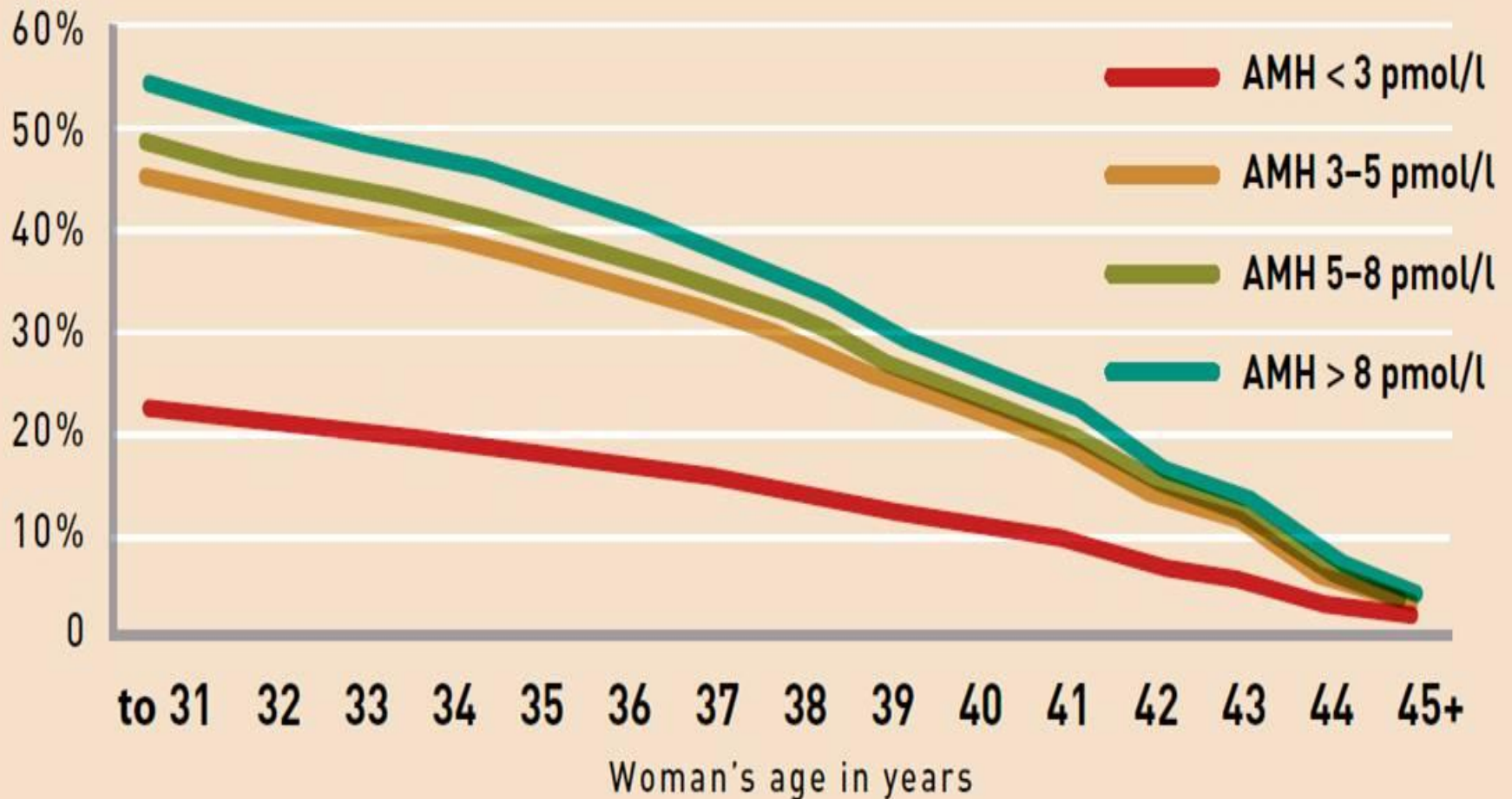
Significance levels are for the whole model using one-way ANOVA

Where indicated by the signs (*, #, or \$), intergroup variability was not found to be significant as per the following key: *No difference between groups 2 and 3, #no difference between groups 1 and 2, \$no difference between groups 1 and 3. All other values denoted in bold had significant difference within group and for the whole model



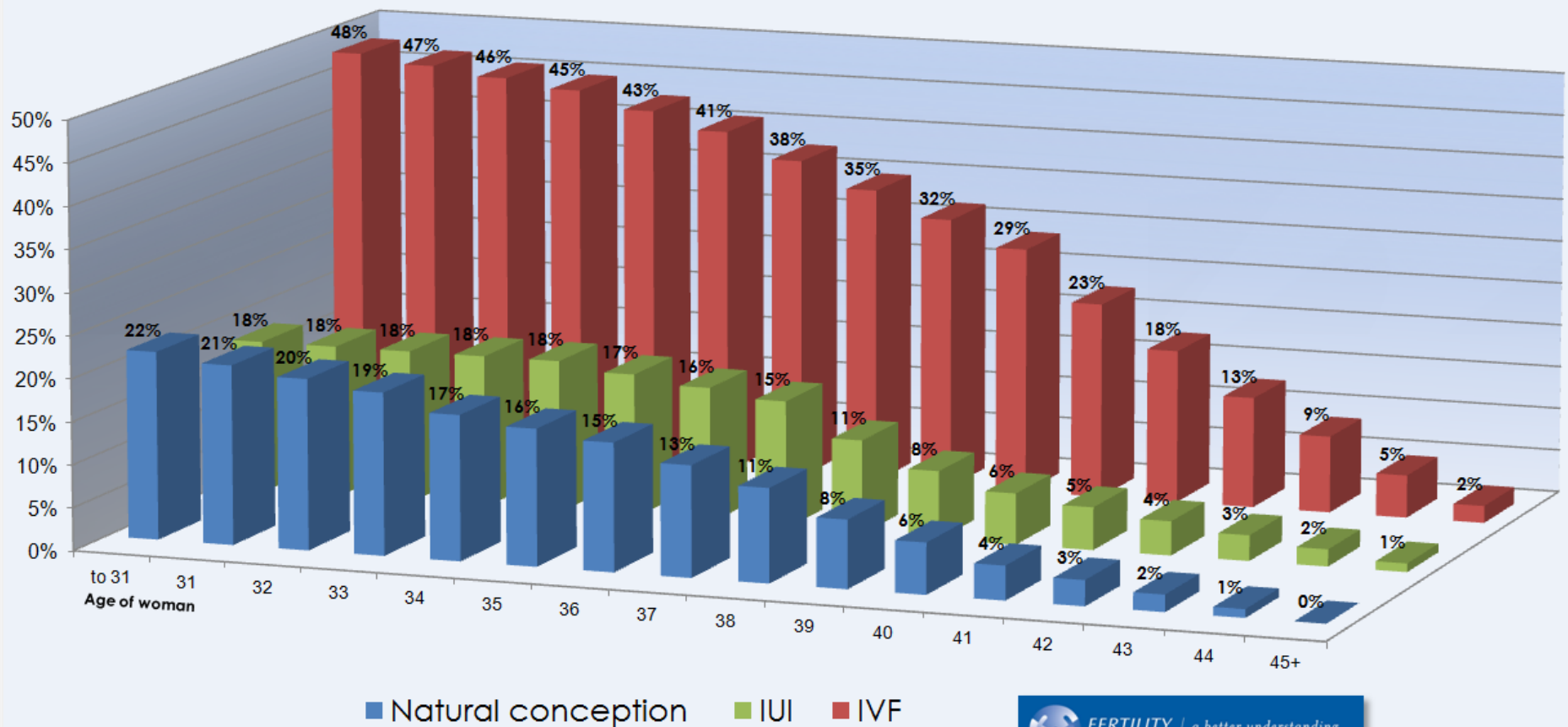
BIRTH RATE FROM SINGLE IVF EGG COLLECTION

including use of any frozen embryos within 6 months



AMH and chances of Livebirth in IVF

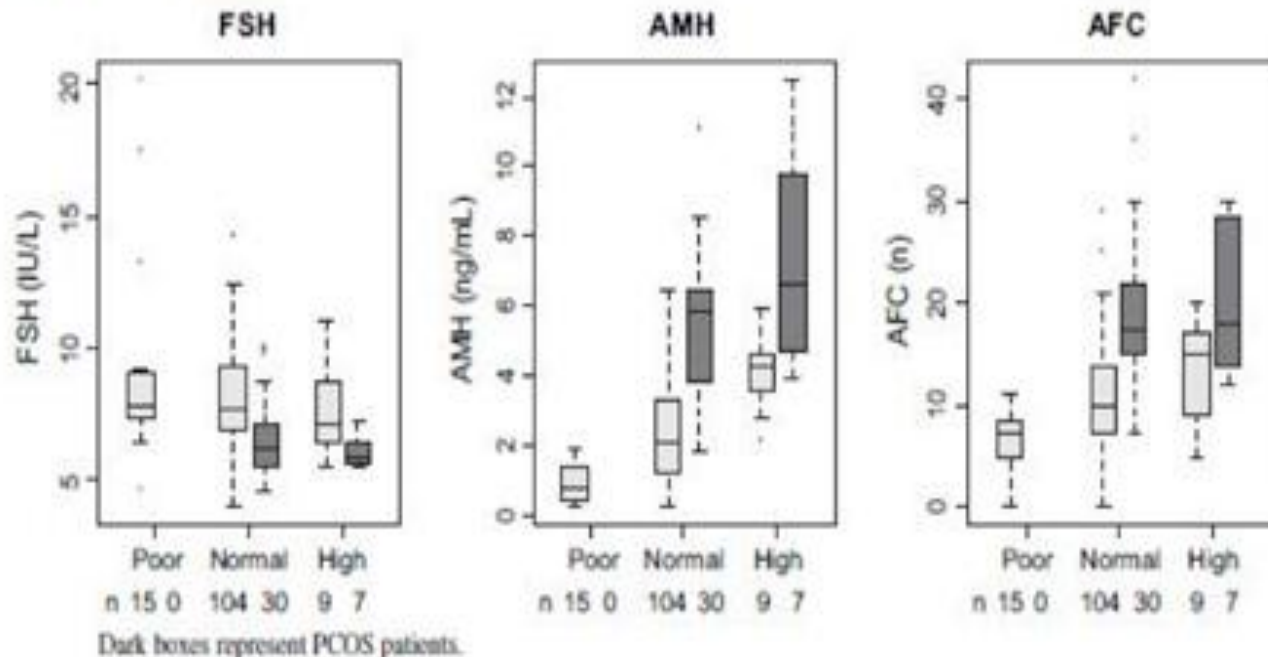
% Chance of a live birth per cycle



Source - Fertility Associates Biological Clock & Pathway to a child data

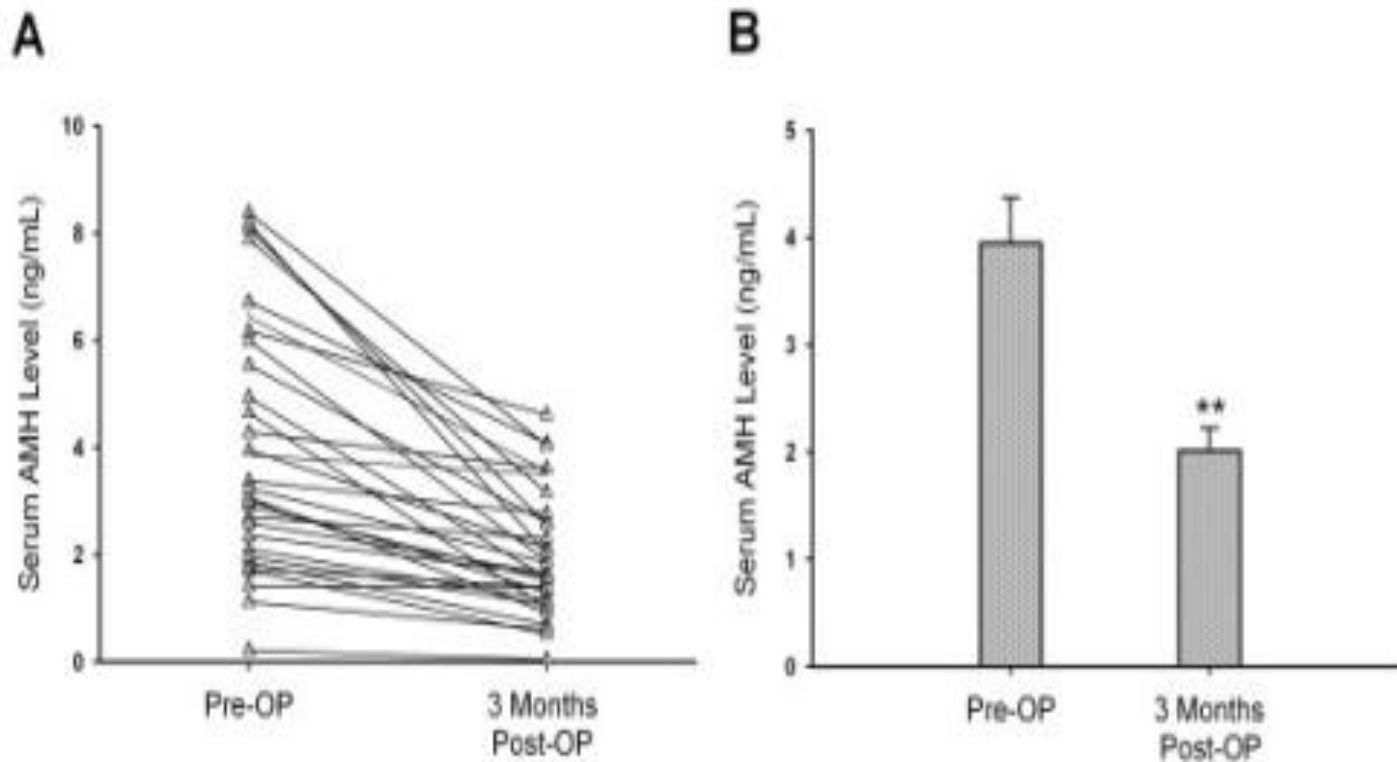
AMH levels can predict PCOS

Box-and-whisker plots for baseline FSH, AMH, and AFC in poor, normal, and high-responder women. Dark boxes represent PCOS patients.





Impact of Ovarian Surgery on AMH



Menopausal Age

- Current Smoking menopause 1.9 years earlier
- Low BMI (below 20) associated with earlier menopause

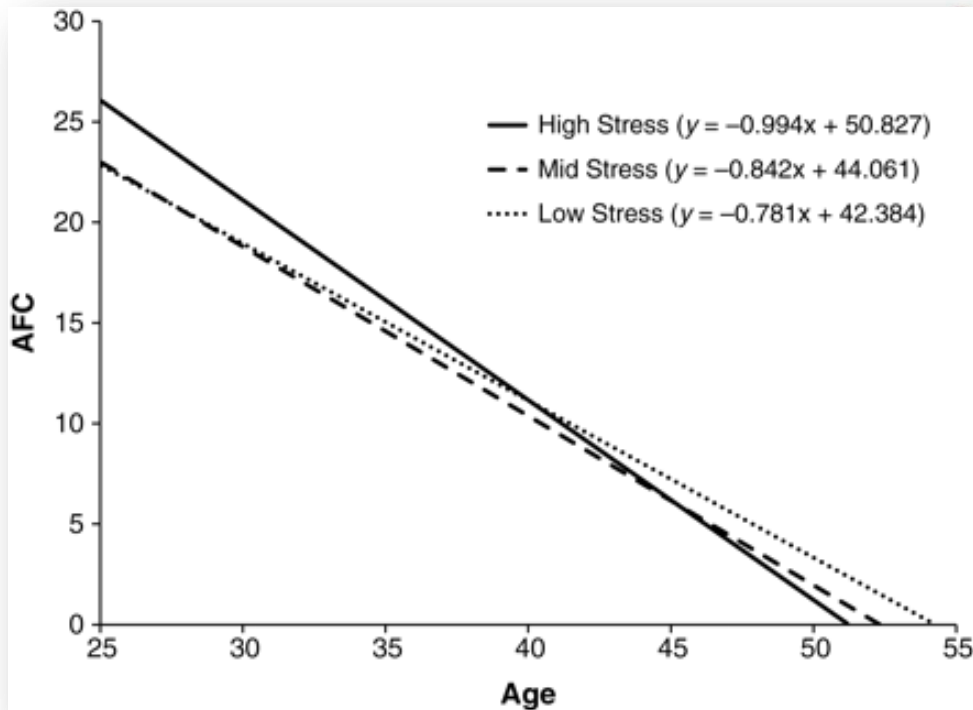




FERTILITY
associates

a better understanding
TE RAUHANGA O TE WHARETANGATA

Stress does matter





Vitrification of Oocytes

Efficacy of oocyte vitrification combined with blastocyst stage transfer in an egg donation program



Table II

Clinical outcomes in the study and the control group.

	Study group	Control group	P
Recipients	34	85	
No. of warmed oocyte/recipient (Mean $\pm$ SD)	7.44 $\pm$ 2.08		
No. of injected oocytes/recipient (Mean $\pm$ SD)	7.38 $\pm$ 2.07	8.18 $\pm$ 3.03	0.080
No. of fertilized oocytes/recipient (Mean $\pm$ SD)	5.62 $\pm$ 1.94	7.15 $\pm$ 2.87	0.530
No. of blastocyst/recipient (Mean $\pm$ SD)	2.45 $\pm$ 1.23 ^a	3.33 $\pm$ 1.93	0.008
No. total blastocyst transferred	66 (1.94 $\pm$ 0.24)	168 (1.98 $\pm$ 0.15)	0.138
Pregnancy rate (%)	61.8	60.0	0.930
Implantation rate (%)	43.9	42.9	0.925
Single pregnancy (%)	61.9	58.8	0.904
Twin pregnancy (%)	38.1	41.2	0.874
Miscarriages (%)	9.5	5.9	0.609
Biochemical pregnancy rate (%)	4.6	3.8	0.882

Note: Values in parentheses are mean blastocyst transferred/recipient.

^aP < 0.05 compared to the control group.

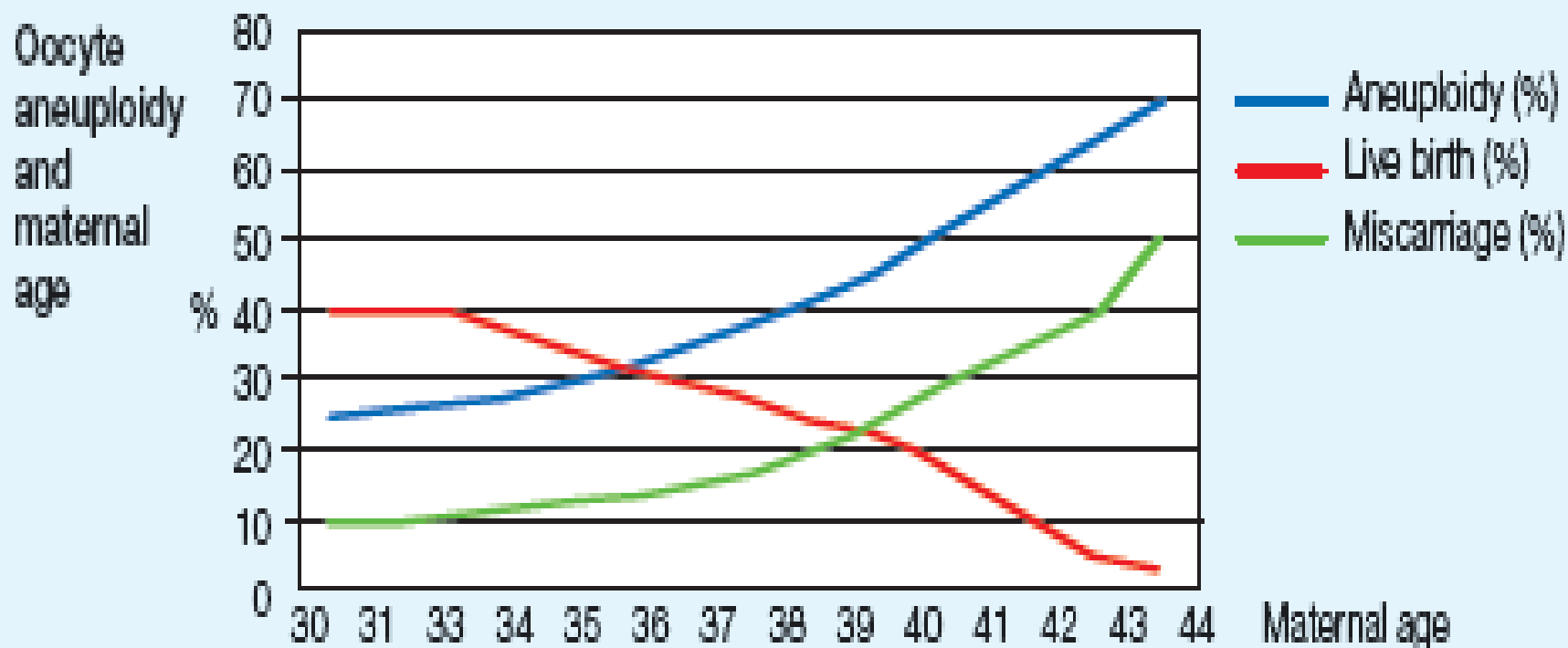


**How can we choose
better embryos?**

- **PGS**
- **Time Lapse Photography**



Pre Implantation Genetic Screening





FERTILITY
associates

| *a better understanding*

TE RAUHANGA O TE WHARETANGATA



Leaders in Fertility



FERTILITY
associates

| *a better understanding*

TE RAUHANGA O TE WHARETANGATA

Time Lapse Photography

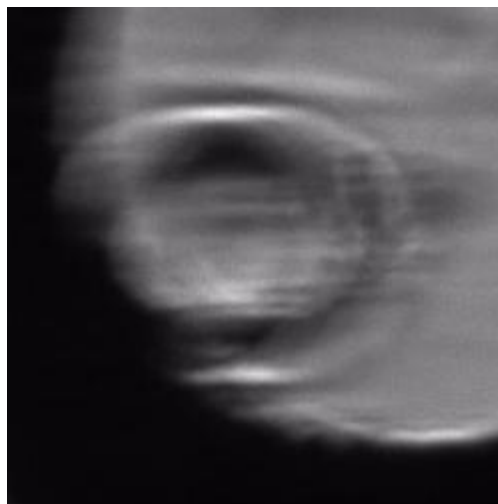
Leaders in Fertility



FERTILITY
associates

| *a better understanding*

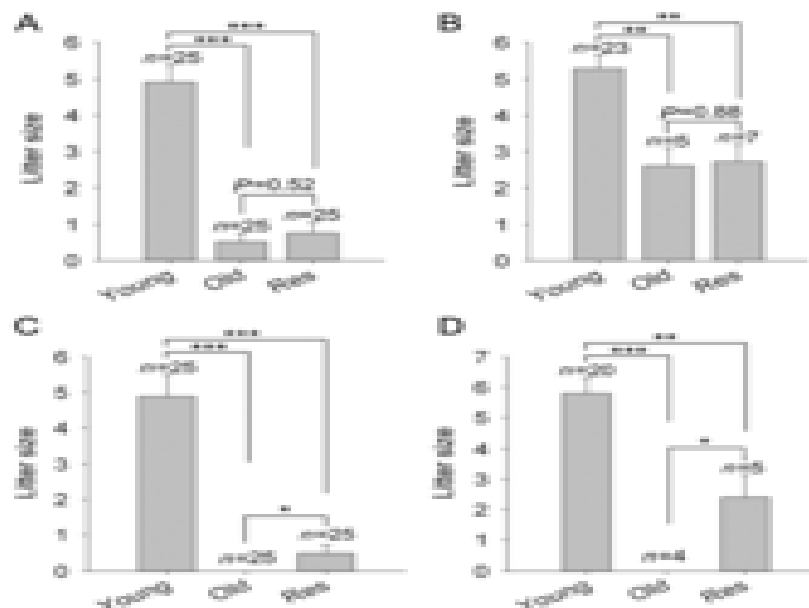
TE RAUHANGA O TE WHARETANGATA



Leaders in Fertility

Resveratrol

Antioxidant present in skin of red grapes





Summary for Egg Care

- Parents
- Women should have an individualised information about reproductive span and menopause
- Lifestyle advice
- Vitrification is a robust option
- New technologies to select good eggs

