

POIDS ET AMP

Catherine Avril
Clinique Mathilde, Rouen.

Les patientes anovulantes sont plus souvent maigres ou obèses que les normo-ovulantes

- .Les femmes dont le BMI >24 à 18 ans ont un risque accru de stérilité anovulatoire
- .Une réduction pondérale augmente le taux de succès des traitements inducteurs de l'ovulation chez la femme anovulante (CROSIGNANI 94,CLARK 93)

- La majorité des patientes obèses infertiles sont infertiles pour les mêmes causes que les femmes de poids normal , l'obésité est un cofacteur qu'il faut prendre en compte dans la conduite thérapeutique
- Une minorité <10% est infertile par anovulation et le lien entre l'obésité et l'infertilité est direct

OVULATION ↔ OVAIRES ↔ OVOCYTE

- Ovulation : libération d'une gamète féminine par l'ovaire chaque mois

=étude du système hypothalamo – hypophyso ovarien

=étude du cycle menstruel

- Ovaire :gonade

=structure échographique de l'ovaire et dosages hormonaux en début de cycle

- Ovocyte :gamète

=ICSI : maturité ovocytaire et morphologie ovocytaire

Patientes infertiles obèses
anovulantes :

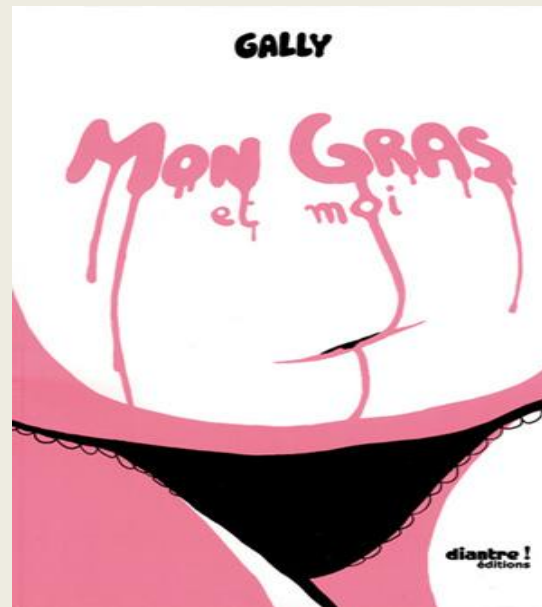
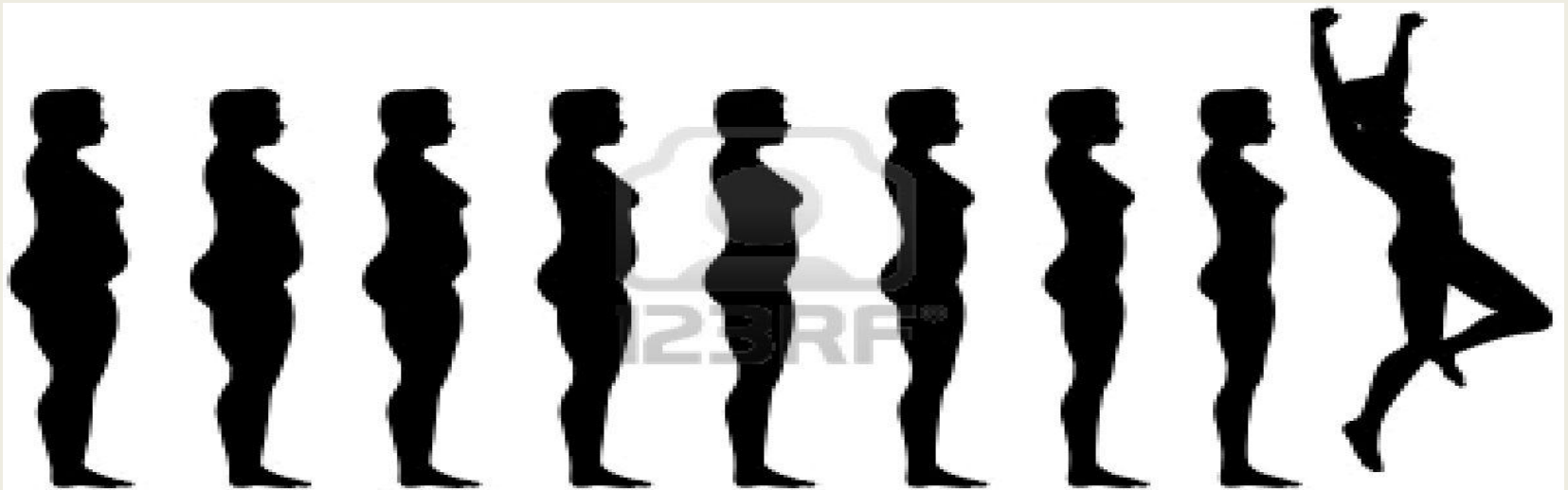
OMPK obèse

OMPK ET OBESITE

FOLLICULOGENESE NORMALE	FOLLICULOGENESE INADEQUATE	ABSENSE DE FOLLICULOGENESE
CYCLES 28 à 35 JOURS	CYCLES DE 30 à 45 JOURS	CYCLES TR7S LONGS
Poids normal ou surpoids	Poids normal ou obésité	Surpoids ou obésité
Signes d'hyper androgénie	Signes d'hyper androgénie	Signes d'hyper androgénie
Anomalies du cycle depuis la puberté	Anomalies du cycle depuis la puberté	Anomalies du cycle depuis la puberté

Obésité et CC

- Diminution de la sensibilité au citrate de clomifène avec BMI
- Intérêt de la perte de poids +++
- *Comment permettre une réduction pondérale efficace et stable sans « braquer » la patiente et la blesser ?*
- Lobo ,Fertil.Steril 1982
- Kousta , Human Reprod.update 1997



Nutrition

- ❑ Objectif de poids réaliste et stable : une perte de 10 % ?
- ❑ Suivi psychologique spécialisé
indispensable mais ...pb de prise en charge
... pb niveau intellectuel
- ❑ Nutritionniste qui fera une enquête alimentaire

Histoire pondérale

- Poids durant l'enfance et « à 18 ans »
- Variations pondérales
- Poids maximum atteint
- Poids dans la famille

- ***Exemple de gain total de 100 kg :***

- 80 kg à 18 ans 80
- réduction de 15 kg à 19 ans puis reprise de 20 kg à 22 ans 85
- perte de 5 kg chaque printemps et reprise de 7 kg dans l'hiver
101 de 22 à 29 ans
- Perte de 12 kg à 30 ans et reprise de 15 kg à 32 ans 104
- Perte de 7 kg à 32 ans et reprise de 9 kg à 34ans 106

Metformine

- Metformine 500 mg x 3 par jour : aide à la réduction pondérale , diminution de l'insulino-résistance
- Prescrit en première intention si obésité et insulino-résistance
- Peu de risque de grossesse multiple
- Pas AMM dans cette indication .Arrêter si grossesse ?
Diminuerait le risque de FCS et de diabète gestationnel ?

Le seuil de FSH varie en fonction du poids et de l'insulino- résistance

- **B. Fauser: BMI +++++ :**
Dose de FSH = $4.5 \times \text{BMI}(\text{kg}/\text{m}^2) + 1.5$ /R²=0.29.
- **Des doses de FSH plus élevées sont requises si le citrate de clomifène n'induisait pas de folliculogénèse**

La leptine inhibe l'action facilitatrice de l'IGF-1 sur l'augmentation de l'œstradiol induite par FSH .

La leptine est positivement corrélée à l'insulino- résistance

- **Le taux de FSH** : cette FSH s'ajoute à celle administrée mais plus la FSH endogène est élevée , plus le seuil de FSH est élevé .
L'inhibine B n'est pas prédictive
- **2 équation B. Fauser :**
- $3.5 \text{ BMI (kg/m}^2) + 35.6 \text{ résistance au CC (oui=1, non =0) + } 6.7 \times \text{FSH(mUI / ml) + } 2.6 \times \text{insulinémie (mUI / ml) / glycémie (nmol / l) - } 32.5$.//* R2 est de 0.49
- $4 \text{ BMI (kg/m}^2) + 32 \text{ résistance au CC (oui=1, non =0) + } 7 \text{ IGF -1 (ng / ml) + } 6 \times \text{FSH (mUI / ml) - } 51$.//* R2 est de 0.54

Effects of different body mass indices on in vitro maturation in women with polycystic ovaries.

[Shalom-Paz E Fertil Steril.](#) 2011 Aug;96(2):336-9

McGill University, Montreal, Quebec, Canada

- 113 PCOS
- BMI : maigres <18 , nles : 18 à 25 , surpoids : 25 à 30 , obèses 30 à 35, obésité morbide>35
- The number and quality of oocytes among women with different BMIs were similar. There was no significant difference in the endometrial thickness and rates of implantation, pregnancy, and delivery among women with different BMIs.
- The pregnancy rate in underweight women was 50%, normal weight 47.9%, overweight 29.1%, obese 27.2%, and in morbidly obese women was 30.7%. The miscarriage and delivery rates were also similar.
- The results of IVM are independent of BMI.

Obésité et infertilité d' autres
étiologies

:

ovaire normal ou déficient

A-t-on recours trop facilement à la FIV en France ?

- 400.000 boîtes de citrate de clomifène et 3.200.000 équivalents 75U de FSH sont vendus en France chaque année hors FIV/ICSI : plus du double de la moyenne européenne .
- Nbre de tentatives de FIV/ICSI par habitant (par nbre de naissances ?) dans la moyenne européenne
- Indications par excès : infertilité inexpliquée après 40 ans ?
- Indications par défaut : échecs prévisibles de stimulations simples et/ou IAC

Andersen : dose de départ de FSH .

Nbre de follicules < 10 mm	<15	90 UI/ml
	15 à 25	60 UI/ml
	>25	50 UI/ml
Volume ovarien	<9ml	90 UI/ml
	9 à 13 ml	60 UI/ml
	>13ml	50 UI/ml
Score doppler	2 et 3	30 UI/ml
	4	20 UI/ml
	5	10 UI/ml
	6	00 UI/ml
Age	>35	20 UI/ml
	30 à 35	10 UI/ml
	<30	00 UI/ml
Tabagisme	>10	20 UI/ml
	<11	10 UI/ml
	Non fumeur	00 UI/ml

**Extremes of body mass do not adversely affect the
outcome of super-ovulation and IVF »
Lashen ,99,Human.Reprod**

- **76 obèses(BMI>28) et 152 contrôles appariées en fonction de l'âge , du bilan à J3 , du rang du traitement et de la dose de FSH de départ**
- **E2 plus bas le jour du déclenchement (2677 versus 3625)**
- **Résultats identiques (23 versus 20 %G)**

Impact of overweight and underweight on ART

Fedorcsak , Human Reprod.2004

- 50.190 de 1996 à 2002 Oslo
- Taux de G identiques
- Augmentation des FCS
- 50% des poids nl , vs 45%des surpoids , 40% des obèses ont accouché

IS IT JUSTIFIED TO INCLUDE EXTREME OVERWEIGHT WOMEN IN AN IVF PROGRAM?

Avril C., Bastit P., Chaput-Toupin E., Villière J.

Clinique Saint-Antoine 696, rue Robert Pinchon
76230 Bois-Guillaume, France

MATERIALS AND METHODS(1)

Design of the study

- Retrospective next case-controlled study of our prospectively collected database
- Patients included in our program between 1997 and 2002 included.

Population

- 83 obese women $BMI > 35 \text{ kg/m}^2$
- Each obese patient was paired to the 2 next normal weight patient ($20 < BMI < 25 \text{ kg/m}^2$) with same age (± 2 years) parity and nicotine addiction.

MATERIALS AND METHODS(2)

IVF procedure

- Long agonist protocol (Decapeptyl 3 mg or 0.1 mg) followed by FSH or hMG (Metrodin®, Gonal-F® Serono; Puregon®: Organon; Menopur®, Menogon®: Ferring).
- An ultrasound was performed 5 weeks after transfer if the patient conceives.

Statistical analysis

- Data are expressed as mean with standard deviation noted and Mann-Whitney test is used.
- Chi square and Yates chi-square are used to compare proportions when appropriate..

RESULTS(1):

Characteristics of populations

	Overweight patients	Normal weight patients
Nb of patients	83	166
Age	32.1 ± 3.2	31.7 ± 3.4
Mean BMI	36.3 ± 3.1 kg/m²	22.6 ± 1.9 kg/m²
Nb attempts	158	325
IVF/ICSI (%)	48/52	48/52

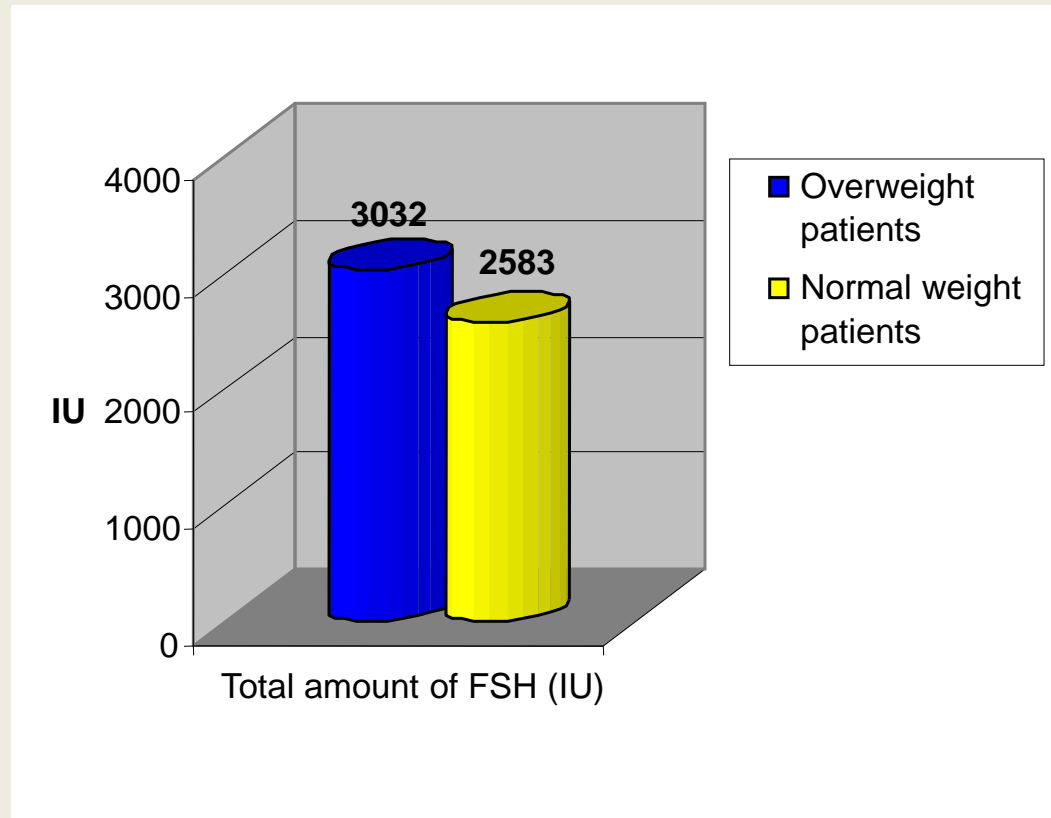
Infertility causes

Infertility causes	Overweight patients	Normal weight patients	<i>P</i>
Tubal diseases	22.4%	24.4%	<i>ns</i>
Sperm alterations	61.0%	63.4%	<i>ns</i>
Unexplained	6.0%	7.5%	<i>ns</i>
PCOs	7.8%	6.7%	<i>ns</i>
Anovulation	9.7%	7.6%	<i>ns</i>

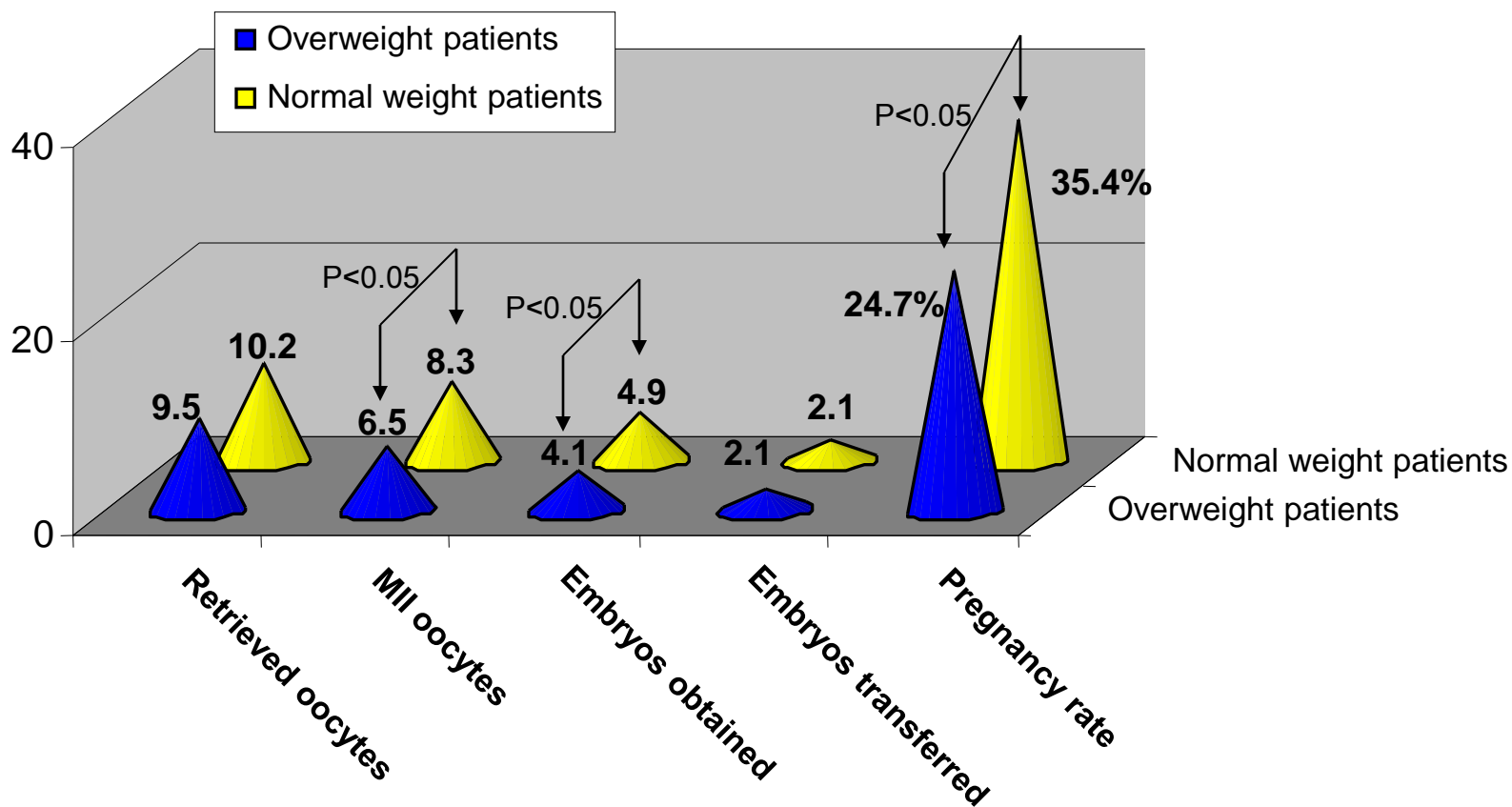
RESULTS(2): IVF procedure

	Overweight group	Normal weight group	<i>P</i>
Total amount of FSH (UI)	3002 ± 1251	2572 ± 987	<0.05
Duration of treatment (days)	12.1 ± 2.1	11.9 ± 2.1	<i>ns</i>
E2 level (pg/ml)	2076.8 ± 1017	2175.3 ± 1025	<i>ns</i>

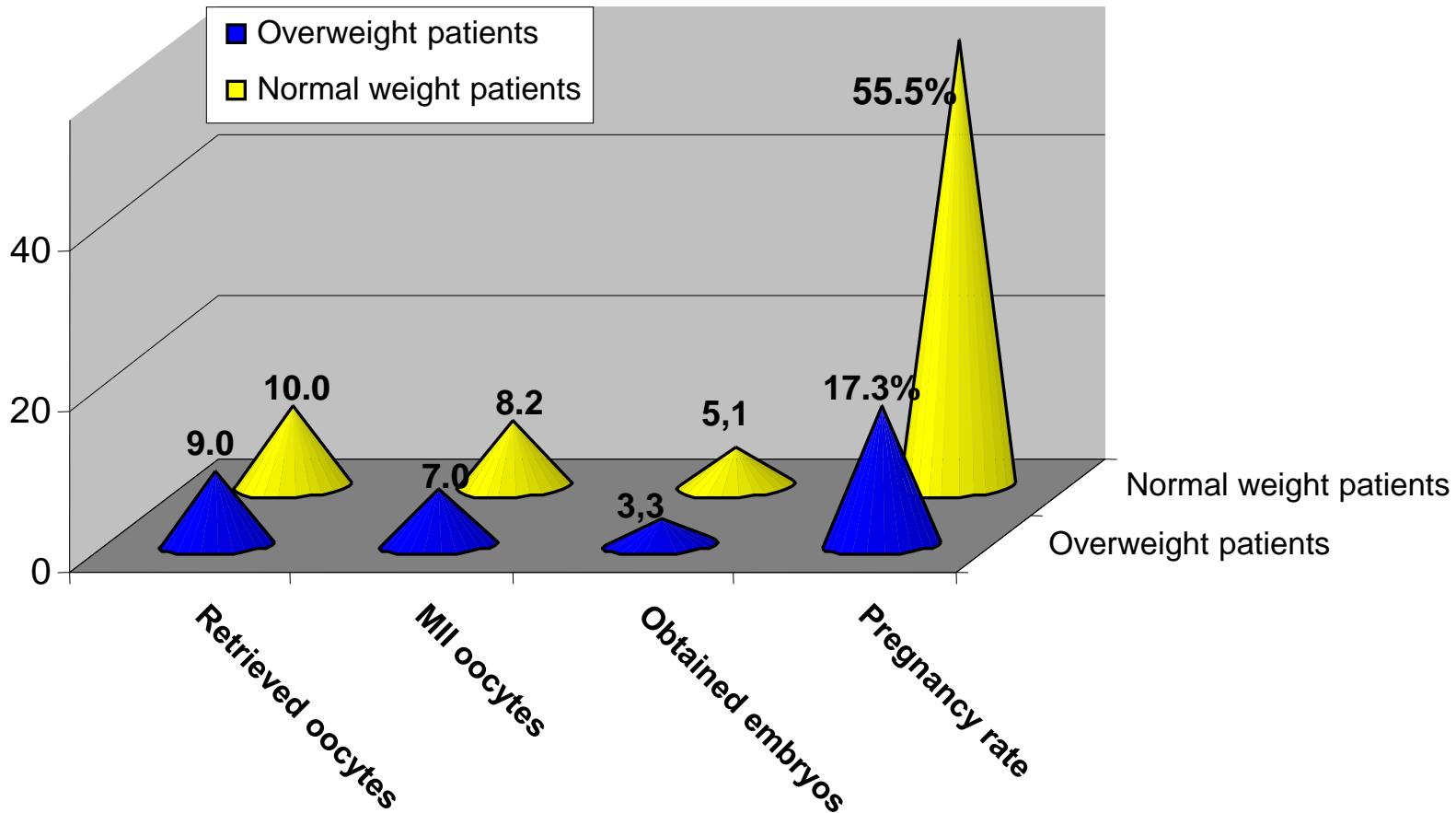
First attempt results



LABORATORY RESULTS AND ISSUE



First attempt results



Adverse event during the IVF procedure

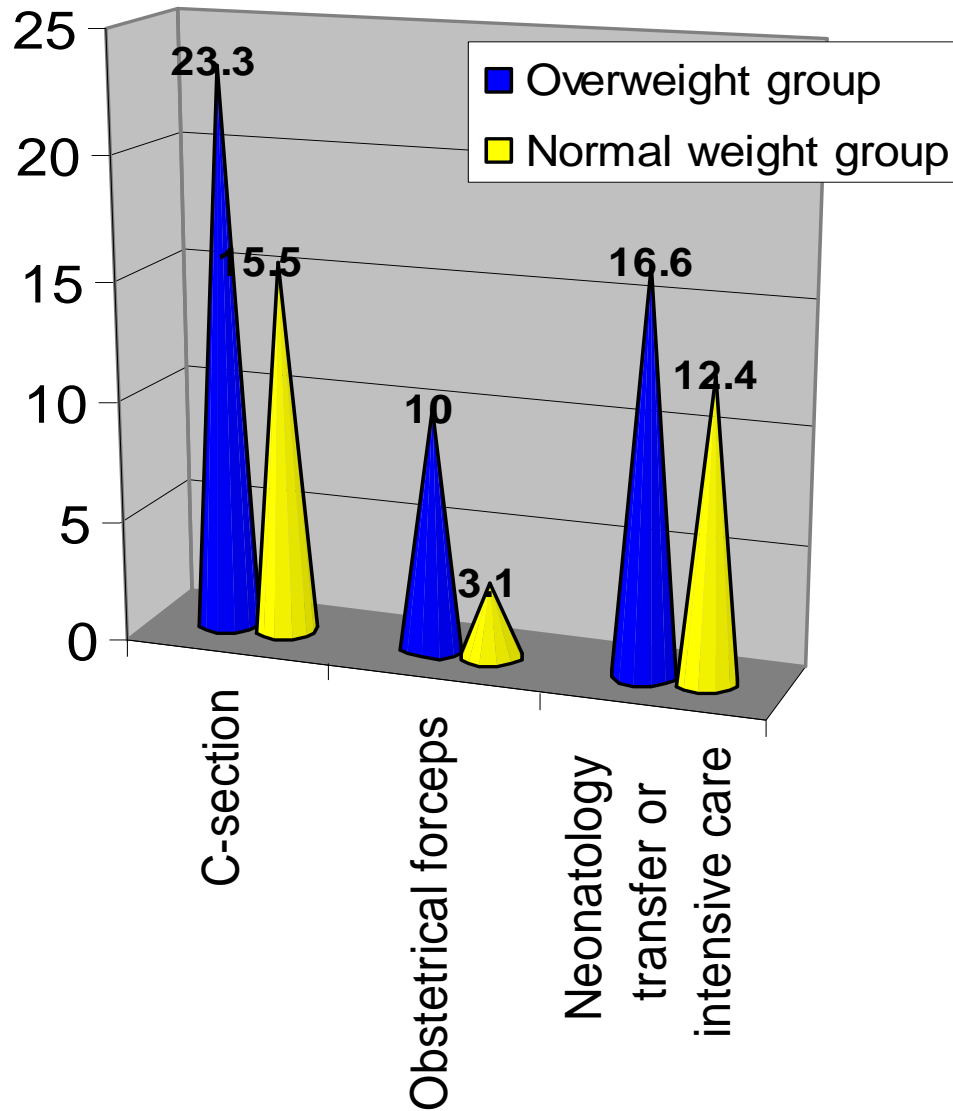
	Overweight group	Normal weight group	P
Cancellation rate	5 +3	9	<i>ns</i>
Abdominal pain	17%	5%	<i>p<0.05</i>
OHSS	3.1%	2.9%	<i>ns</i>
Severe adverse event	0	venous deep thrombosis	<i>ns</i>

Pregnancy rate

	Overweight group	Normal weight group	P
Miscarriage rate	17.9 %	13.0%	<i>ns</i>
Number of viable pregnancies	32	97	<i>p<0.05</i>
Number of twins	6	16	<i>ns</i>

RESULTS(3): Pregnancy course and birth management

	Overweight patients	Normal weight patients	<i>P</i>
Hypertension	36.7%	3.1%	<i><0.0001</i>
Proteinuria	10%	2.7%	Ns
Diabetes mellitus	10%	2.1%	Ns(p=0.09)
baby's weight born after 36 weeks	3282 g	3068 g	ns
C-section	23.3%	15.5%	ns
obstetrical forceps	10%	3.1%	ns
Newborn transfer to neonatology or intensive care	16.6%	12.4%	ns



RESULTS(3): Pregnancy course and birth management

State of health of new-born

	Obese group	Normal weight group
Number of pregnancies	32	97
Number of foetus	38	113
Major birth defect	1/38	4/113
Perinatal mortality	0/38	4/113

CONCLUSION (1)

- 1) Incidence of extreme obesity observed in our IVF centre is similar to that of maternity hospitals in Normandy. There was no difference between the two groups with regard to infertility diagnosis. Few numbers of IVF attempts are related to anovulation or to polycystic ovary syndrome.
- 2) Extreme obesity negatively affects ovarian response to gonadotrophin stimulation in a long agonist protocol: we found a trend toward increased gonadotrophin requirement to obtain an equal oestradiol level. This is due to an increased daily dosage since the duration of the treatment is the same.
- 3) Ovocyte quality is negatively affected: the number of oocytes retrieved is the same in the two groups but the number of metaphase II oocytes and embryo obtained is significantly decreased.
- 4) Although pregnancy rate is lower, it remains suitable: 31 of the 83 obese had at least one healthy baby.

CONCLUSION (2)

- 5) No severe adverse event occurred during the IVF procedure .The incidence of OHSS is the same in the two groups.
- 6) Despite a higher obstetrical morbidity, state-of-health of newborns remains uneventful.

All obese patients who enter an IVF program have to be counselled regarding the consequences of overweight on the IVF outcome that would probably be improved by weight loss. Nevertheless, our study suggests that it is not justified to exclude these extreme overweight patients from ART program.

Ovarian hemorrhage after transvaginal ultrasonographically guided oocyte aspiration: a potentially catastrophic and not so rare complication among lean patients with polycystic ovary syndrome.

[Liberty G, Israel](#)

[Fertil Steril.](#) 2010 Feb;93(3):874-

- To report the first case series of ovarian hemorrhage after transvaginal ultrasonographically guided oocyte aspiration (TVOA).
- **DESIGN:**
- Retrospective analysis.
- **SETTING:**
- In vitro fertilization unit of a tertiary university hospital.
- **PATIENT(S):**
- Patients who underwent TVOA during a 6-year period.
- **INTERVENTION(S):**
- Surgical intervention due to active bleeding from the ovary.
- **MAIN OUTCOME MEASURE(S):**
- Prevalence and risk factors.
- **RESULT(S):**
- Among 3,241 patients undergoing TVOA, 7 were diagnosed as having ovarian hemorrhage afterward. All patients were thin, with a body mass index of 19-21 kg/m², and 4 had polycystic ovary syndrome (PCOS). The prevalence of ovarian bleeding among lean patients with PCOS was 4.5%. The odds ratio for bleeding in lean patients with PCOS vs. all other patients was 50 (95% confidence interval 11-250). The interval between the TVOA and surgical intervention ranged from 5 to 18 hours (mean +/- SD, 11.4 +/- 5 hours). The Delta decrease in hemoglobin levels was 3.2-9 g/dL (mean 6.1 +/- 1.8). In 6 of the 7 patients, laparoscopically guided electrocoagulation was sufficient to achieve hemorrhagic control.
- **CONCLUSION(S):**
- Although acute hemorrhage is a rare event after TVOA, lean patients with PCOS specifically are at much higher risk for this complication.

The impact of lifestyle factors on reproductive performance in the general population and those undergoing infertility treatment: a review

G.F.Homan^{1,2,3}, M.Davies¹ and R.Norman^{1,2}

¹Discipline of Obstetrics and Gynaecology, Research Centre for Reproductive Health, School of Paediatrics and Reproductive Health, Medical School, University of Adelaide, SA, Australia and ²Repromed, Dulwich, SA, Australia

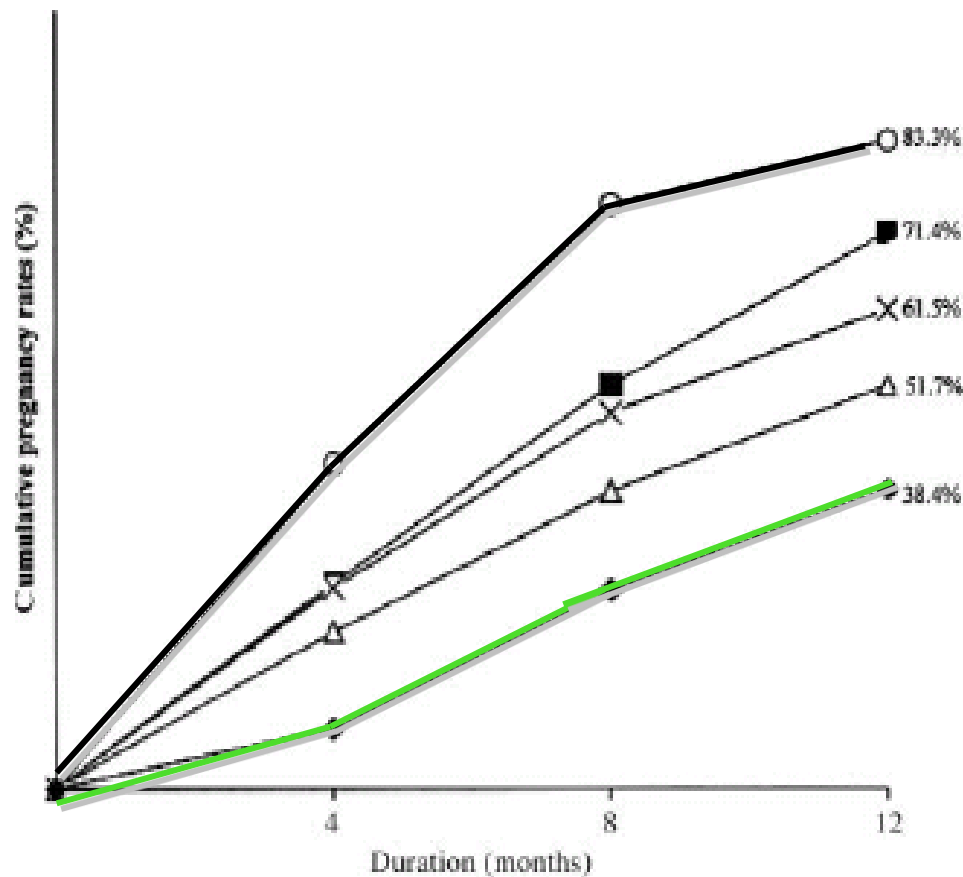


Figure 4. The effect of increasing numbers of negative lifestyle variables on the cumulative conception rates within 1 year for a pregnant population. These variables include women's smoking >15 cigarettes/day, men's smoking >15 cigarettes/day, men's alcohol >20 U/week, women's coffee or tea intake >7 cups/day, women's weight >70 kg, social deprivation score >60, women's age >35 years and/or partner's age >45 years at the time of discontinuing contraception. The lines represent the cumulative conception rates for subgroups with different numbers of negative lifestyle variables as follows: ○, no negative variables; ■, one negative variables; ×, two negative variables; △, three negative variables; ◆, four or more negative variables. Republished from Hassan *et al.* (2004) with permission.

Age-specific success rate for women undertaking their first assisted reproduction technology treatment using their own oocytes in Australia, 2002–2005

Wang , Y.A.

Human Reprod.2008 , Vol 23,Pp. 1633-1638.

❖ **< 30 ans : + 1 an => - 11% (99% CI: 10–12%)**

❖ **> 35 ans : + 1 an => - 15% (99% CI: 10–12%)**

➤ **CONCLUSIONS :**

This study suggested that women aged 35 years or older should be encouraged to seek early fertility assessment and treatment where clinically indicated.



Poids/Age



- Taux de succès // Risques obstétricaux
 - Temps // Perte de poids :
- *Réduction pondérale progressive et lente des surpoids ?*
 - ✓ - 10 kg => gain ?
6 mois - 8%
 - *Chirurgie baryatrique des obésités morbides ?*
 - ✓ - 40 kg => + 30% acct
18 mois - 22%

Pregnancy and fertility following bariatric surgery: a systematic review

Maggard Na ,

JAMA. 2008 (19):2286-96

- 75 articles

3 matched cohortes :

1. obèses non opérées
2. obèses ayant été opérées
3. femmes ayant toujours eu un poids normal

La chirurgie bariatrique normalise quasiment :

- le risque de toxémie : 0% vs 3.1%, $P < .05$, NS avec controles
- le risque de diabète : 0% vs 22.1%, $P < .05$, NS avec controles
- le risque de prématurité : 7.7% vs 7.1%
- le risque de petit poids de naissance : 7.7% vs 10.6% $P < .05$, NS avec controles
- le risque de macrosomie 7.7% vs 14.6% , NS avec controles

Mais pas d'amélioration significative du taux de césarienne

Lifestyle-related factors and access to medically assisted reproduction†
ESHRE Task Force on Ethics and Law, including W. Dondorp¹,
G. de Wert, G. Pennings, F. Shenfield, P. Devroey, B. Tarlatzis,
and P. Barri

Human Reproduction, Vol.25, No.3 pp. 578–583, 2010

- In view of the risks for the future child, fertility doctors should **refuse treatment to women used to more than moderate drinking** who are not willing or able to minimize their alcohol consumption.
- With regard to obesity and smoking, more data are needed to establish whether assisted reproduction should be made conditional upon prior lifestyle changes (and if so, where the line should be drawn). However, the available data seem to suggest that **treating women with severe or morbid obesity would require special justification.**
- Since on the basis of the available evidence, a **positive reproductive effect of weight loss and smoking cessation can reasonably be assumed**, fertility doctors should insist that a serious effort at achieving these results must be made before treatment can be considered. **Because of the implied time delay, this should however, not be asked from women approaching the end their fertile period.**
- When making assisted reproduction conditional on lifestyle modification or efforts to that effect, fertility doctors should support their patients in achieving the intended results.
- More scientific data about the reproductive effects of obesity, smoking, drinking and other lifestyle-related factors are needed.
- Fertility doctors have a responsibility to contribute to further scientific research in this area.

Obésité et FCS après don d'ovocytes Pellicer , Fertil.Steril 2003

- Etude rétrospective sur 712 cycles de don
- BMI receveuse
- BMI>30 FCS 38%
- 25<BMI<30 FCS 15.5%
- 20<BMI<25 FCS 13%

Miscarriage karyotype and its relationship with maternal body mass index, age, and mode of conception.

[Kroon B](#), Queensland Fertility Group Research Foundation,
Brisbane, Queensland, Australia.

[Fertil Steril](#). 2011 Apr;95(5):1827-9

- This study investigated the association between miscarriage karyotype and body mass index, maternal age, and mode of conception. Miscarriages after IVF and/or intracytoplasmic sperm injection were less frequently aneuploid; advanced maternal age was associated with an increase in aneuploid products of conception; overweight and obese women aged <35 years were less likely to have aneuploid miscarriages than women in a healthy weight range, suggesting alternate mechanisms for miscarriage in this population.

Female obesity impairs in vitro fertilization outcome without affecting embryo quality.

[Bellver J](#),IVI, Valencia, Spain

[Fertil Steril.](#) 2010 Feb;93(2):447-54

- Etude rétrospective
 - 6,500 IVF-ICSI cycles.
 - **INTERVENTION(S):**
 - <20 kg/m²; n = 1,070 (16.5%)
 - 20-24.9 kg/m²; n = 3,930 (60.5%)
 - 25-29.9 kg/m²; n = 1,081 (16.6%)
 - > or =30 kg/m²; n = 419 (6.4%).

 - Nombre d'embryons et qualité embryonnaire identiques
 - Diminution du taux d'implantation embryonnaire : chaque unité de BMI supplémentaire diminue la probabilité d'implantation embryonnaire :
odds ratio 0.984 (95% confidence interval 0.972-0.997) et 0.981 (95% confidence interval 0.967-0.995)
- CONCLUSION:**
- “Female obesity impairs IVF outcome, but embryo quality is not affected, pointing to an alteration in the uterine environment.”

The implantation of every embryo facilitates the chances of the remaining embryos to implant in an IVF programme a mathematical model to predict pregnancy and multiple pregnancy rate

Human reprod. 2005 , 10, 2923-2931

- Le taux de grossesses multiples est plus élevé que celui attendu par la loi binomiale
- La probabilité d'implantation de chaque embryon supplémentaire est augmentée de 22% par rapport au précédent

Table I. Comparison of the number of implanted embryos (according to the number of transferred embryos) obtained at the centre with a 10.5% implantation rate with those theoretically expected following the binomial model and the collaborative model

Embryos transferred		No. of implanted embryos				
		1	2	3	4	5
		≥1 (only 1)	≥2 (only 2)	≥3 (only 3)	≥4 (only 4)	≥5 (only 5)
One (<i>n</i> = 27) (IR = 7.4%)	Observed	7.4 (7.4)				
	Binomial	7.4 (7.4)				
	Collaborative	7.4 (7.4)				
Two (<i>n</i> = 38) (IR = 5.3%)	Observed	7.9 (5.3)	2.6 (2.6)			
	Binomial	10.3 (10.0)	0.3 (0.3)			
	Collaborative	7.9 (5.3)	2.6 (2.6)			
Three (<i>n</i> = 55) (IR = 6.1%)	Observed	16.4 (14.6)	1.8 (1.8)	0 (0)		
	Binomial	17.0 (16.0)	1.0 (1.0)	0 (0)		
	Collaborative	16.4 (14.7)	1.7 (1.6)	0.1 (0.1)		
Four (<i>n</i> = 197) (IR = 12.1%)	Observed	29.0 (16.3)	12.7 (6.1)	6.6 (6.6)	0 (0)	
	Binomial	40.1 (32.8)	7.3 (6.7)	0.6 (0.6)	0 (0)	
	Collaborative	29.2 (17.0)	12.2 (7.5)	4.7 (3.4)	1.3 (1.3)	
Five (<i>n</i> = 40) (IR = 9%)	Observed	35.0 (25.0)	10.0 (10.0)	0 (0)	0 (0)	0 (0)
	Binomial	37.6 (30.9)	6.7 (6.1)	0.6 (0.6)	0 (0)	0 (0)
	Collaborative	35.8 (28.0)	7.8 (6.7)	1.1 (1.0)	0.1 (0.1)	0 (0)

Data are expressed as percentages per transfer. IR = implantation rate.

In unselected patients, SET prevents all multiples but results in significantly lower pregnancy rates compared with DET: a randomised controlled trial

Montfoort, Geraedts J; , Human reprod 2006, 21, 338-343

- PR : SET 21.4 vs DET 40.3 %
- GG : SET 0% vs DET 21 %
- CONCLUSION « To avoid twin pregnancies resulting from an IVF treatment eSET should be applied to all patients »
 - ✓ ***Lorsque le taux de grossesse escompté est de 40% avec un DET, le SET est envisageable malgré une diminution des chances de grossesse à la première tentative***

RBiomed Online. 2004 May;8(5):600-6.

Cumulative pregnancy rates and drop-out rates in a German IVF programme: 4102 cycles in 2130 patients.

Schroder ak , University Clinic Schleswig-Holstein

- Etude retrospective de 4102 cycles chez 2130 patients en Allemagne.
- Taux de grossesse cumulé après 4 cycles :31 % //taux attendu :53.3%.
- Age :ECPR après 4 cycles:
 - 57.1% <35 ans
 - 44.8% >35 ans
 - 35.4% >40 ans .
- Drop-out
 - 39.9% après le 1° cycle
 - 62.2% après le 4° cycle



Beth A. Malizia, M.D., Michele R. Hacker, Sc.D., M.S.P.H., and Alan S. Penzias, M.D.

“Outcomes of in vitro fertilization (IVF) treatment are traditionally reported as pregnancies per IVF cycle. However, a couple's primary concern is the chance of a live birth over an entire treatment course”





Overweight and seminal quality: a study of 794 patients.

Martini AC, Argentina

[Fertil Steril.](#) 2010 Oct;94(5):1739-43.

- **794 HOMMES , 2006 À 2007**
- Spermogramme, biochimie liquide sérial
- Pas de lien entre BMI et numération
- Corrélation négative BMI et mobilité,
- Corrélation négative BMI et alpha-glucosidase
- Corrélation positive BMI et fructose

- **CONCLUSION : ÉPIDIDYME ?**

An exploration of the association between male body mass index and semen quality. Shayeb, Aberdeen

Body Mass Index (BMI) Category	N	Outcome	OR (95% CI)
<18.5	18	Volume ejaculat <2 ml : formes typiques	1.57 (0.49-5.01)
<15%			1.44 (0.45-4.6)
18.5-24.99	839		
25-29.99	909		1.06 (0.82-1.38)
1.07 (0.86-1.33)			
≥30	269		1.69 (1.20-2.38)
1.50 (1.06-2.09)			

Body Mass Index (BMI) Category	N	Outcome	OR (95% CI)	OR (95% CI)
<18.5	18	Numération < 20 M/ml	0.46 (0.10-2.07)	Mobilité < 50%
2.62 (0.73-9.45)				
18.5-24.99	839			
25-29.99	909		1.03 (0.82-1.31)	0.96
(0.78-1.18)				
≥30	269		1.00 (0.72-1.41)	0.75
(0.56-1.01)				

The impact of body mass index on semen parameters and reproductive hormones in human males: a systematic review with meta-analysis.

[MacDonald AA](#), Auckland .

[Hum Reprod Update](#). 2010 May-Jun;16(3):293-31

- 31 études retrouvées , 5 incluses
- The meta-analysis found no evidence for a relationship between BMI and sperm concentration or total sperm count.
- There was strong evidence of a negative relationship for testosterone, SHBG and free testosterone with increased BMI.

**Economic consequences of overweight and obesity in infertility:
a framework for evaluating the costs and outcomes of fertility
care.**

[Koning AM](#), The Netherland,
[Hum Reprod Update](#). 2010 May-Jun;16(3):246-54

- Overweight and obese subfertile women have a reduced probability of successful fertility treatment and their pregnancies are associated with more complications and higher costs.

obésité

- Facteurs familiaux
- Facteurs génétiques
- Facteurs psy

- Maladie ovarienne associée: OMPK
- Retentissement sur la qualité ovocytaire et le risque de FCS
- Taux de grossesse abaissé en FIV/ICSI

maigreur

- Facteurs familiaux
- Facteurs génétiques
- Facteurs psy +++ à l'origine de l'infertilité

- Pas de maladie ovarienne associée
- Qualité ovocytaire probablement normale
- Taux de grossesse ? En FIV/ICSI

CONCLUSION

Human Fertilisation and Embryologie Authority, UK

✓ **Beneficence**

✓ **Non-maleficence « non nocere »**

✓ **Respect of autonomy**

❑ PRINCIPES

➤ Règles et normes d'actions

- Sécurité sanitaire
- Taux de succès
- Contrôle des couts
- Risque obstétrical

❑ VALEURS

➤ Finalité des actions

- Réponse adaptée à l'identité de chaque couple