A qualidade de vida do homem e a interferência nos parâmetros seminais

Edson Borges Jr.

Declaração:

Sem conflito de interesse para divulgar relacionado ao assunto desta palestra

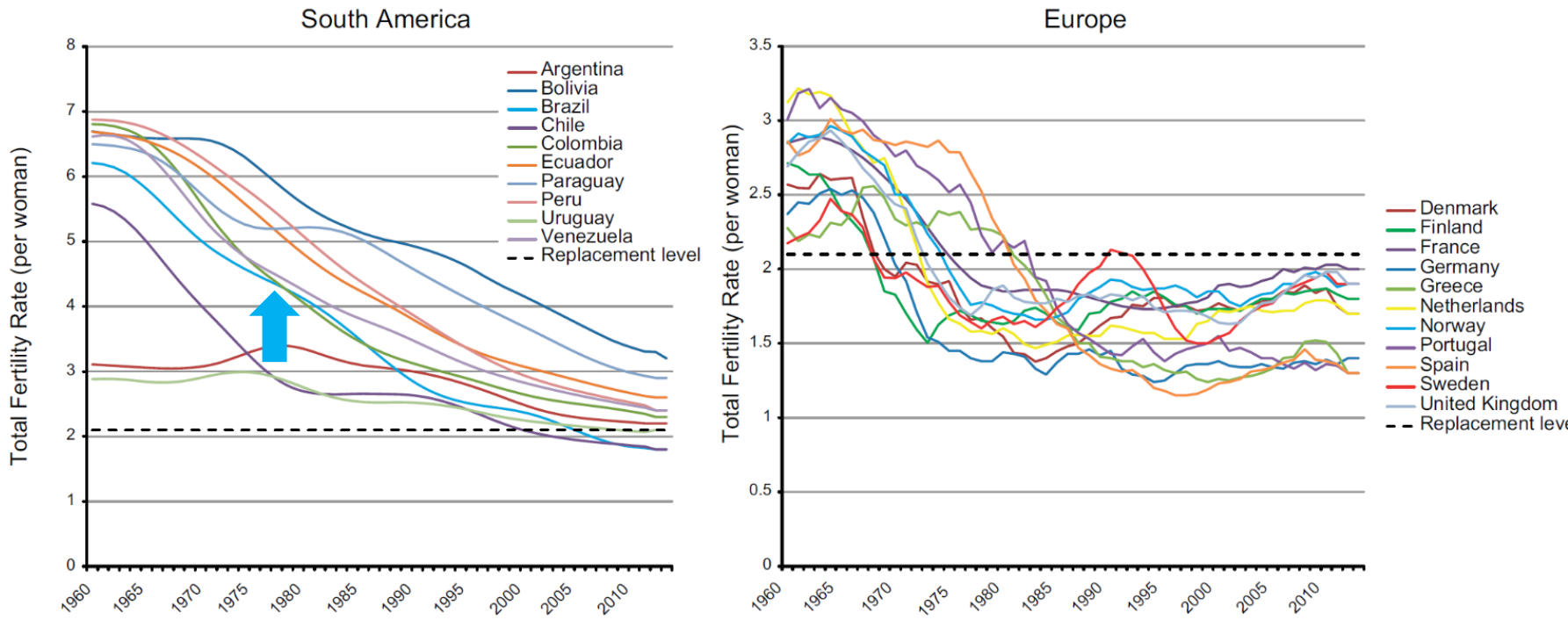
Resolução do Conselho Federal de Medicina
nº 1.595/2.000

Physiol Rev 96: 55–97, 2016
Published November 18, 2015; doi:10.1152/physrev.00017.2015

MALE REPRODUCTIVE DISORDERS AND FERTILITY TRENDS: INFLUENCES OF ENVIRONMENT AND GENETIC SUSCEPTIBILITY

Niels E. Skakkebaek, Ewa Rajpert-De Meyts, Germaine M. Buck Louis, Jorma Toppari, Anna-Maria Andersson, Michael L. Eisenberg, Tina Kold Jensen, Niels Jørgensen, Shanna H. Swan, Katherine J. Sapra, Søren Ziebe, Lærke Priskorn, and Anders Juul

Taxa de Fecundidade



FERTILITY

Incidência de Criptorquidia

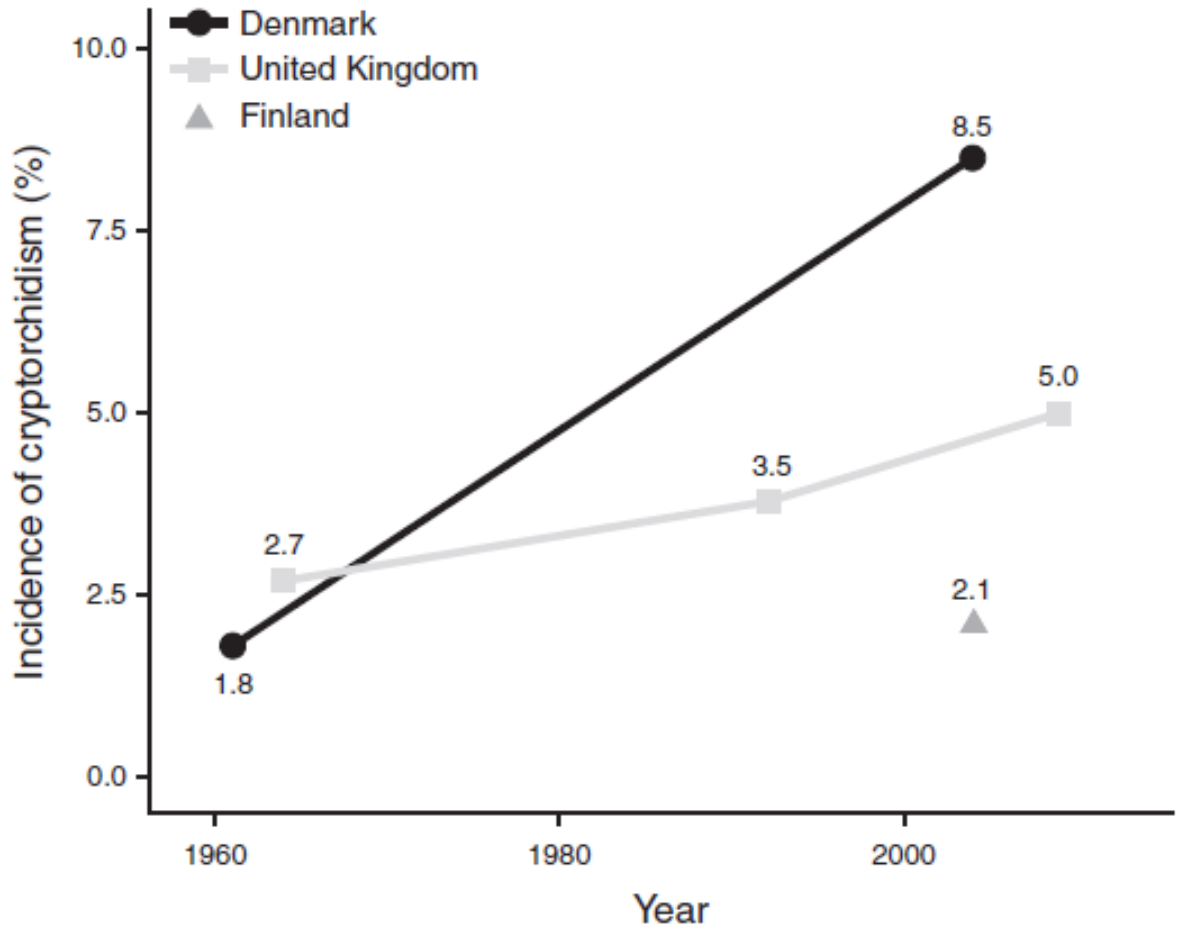


FIGURE 7. Incidence of cryptorchidism at birth on the basis of prospective clinical studies from the 1950s to the 2000s in Denmark, Finland, and United Kingdom. The data points are marked on the year of the publication of the study which represents the preceding incidence rate (3, 47, 61, 184, 377).

FERTIL

Idade da Puberdade

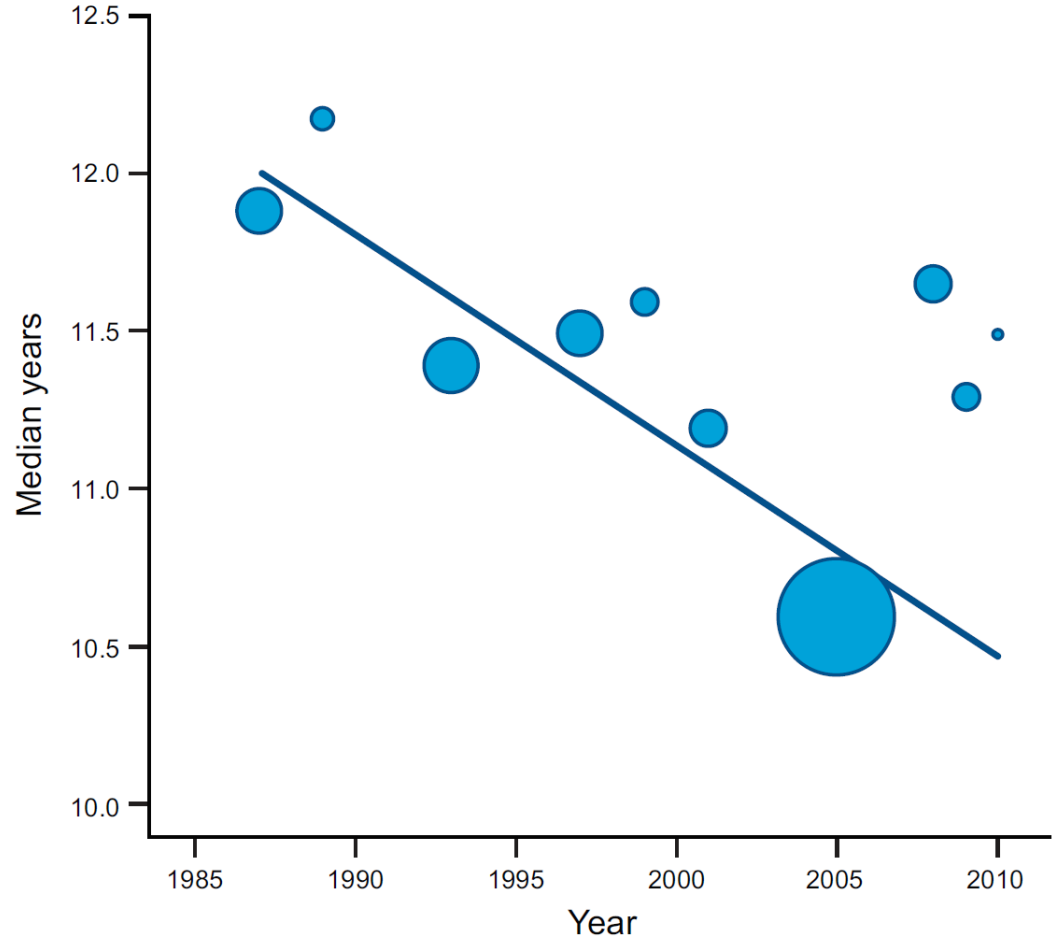


FIGURE 8. Recent changes in male pubertal timing. Testicular volume was >3 ml. [From Mouritsen et al. (293).]

Incidência de Câncer de Testículo

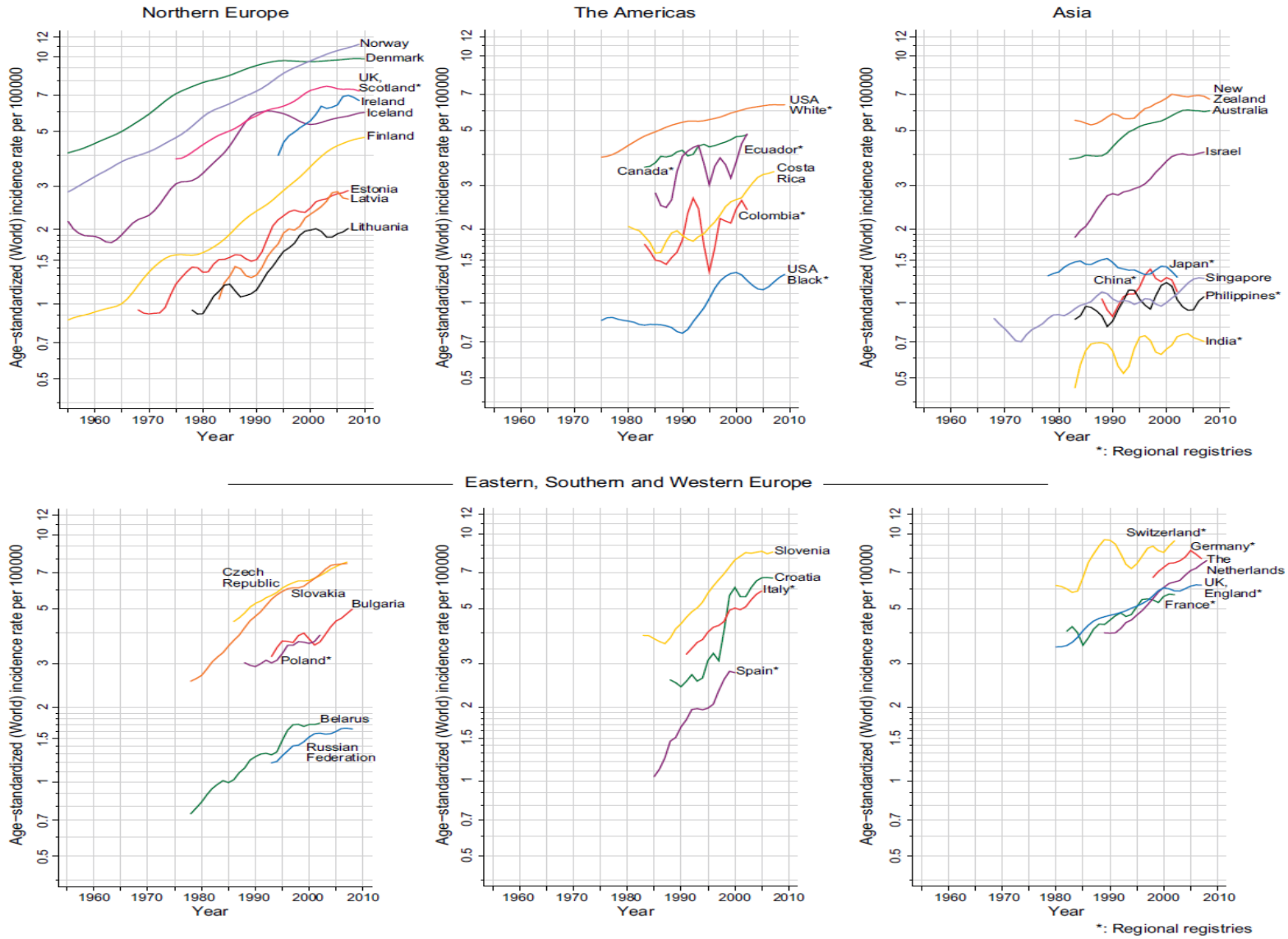


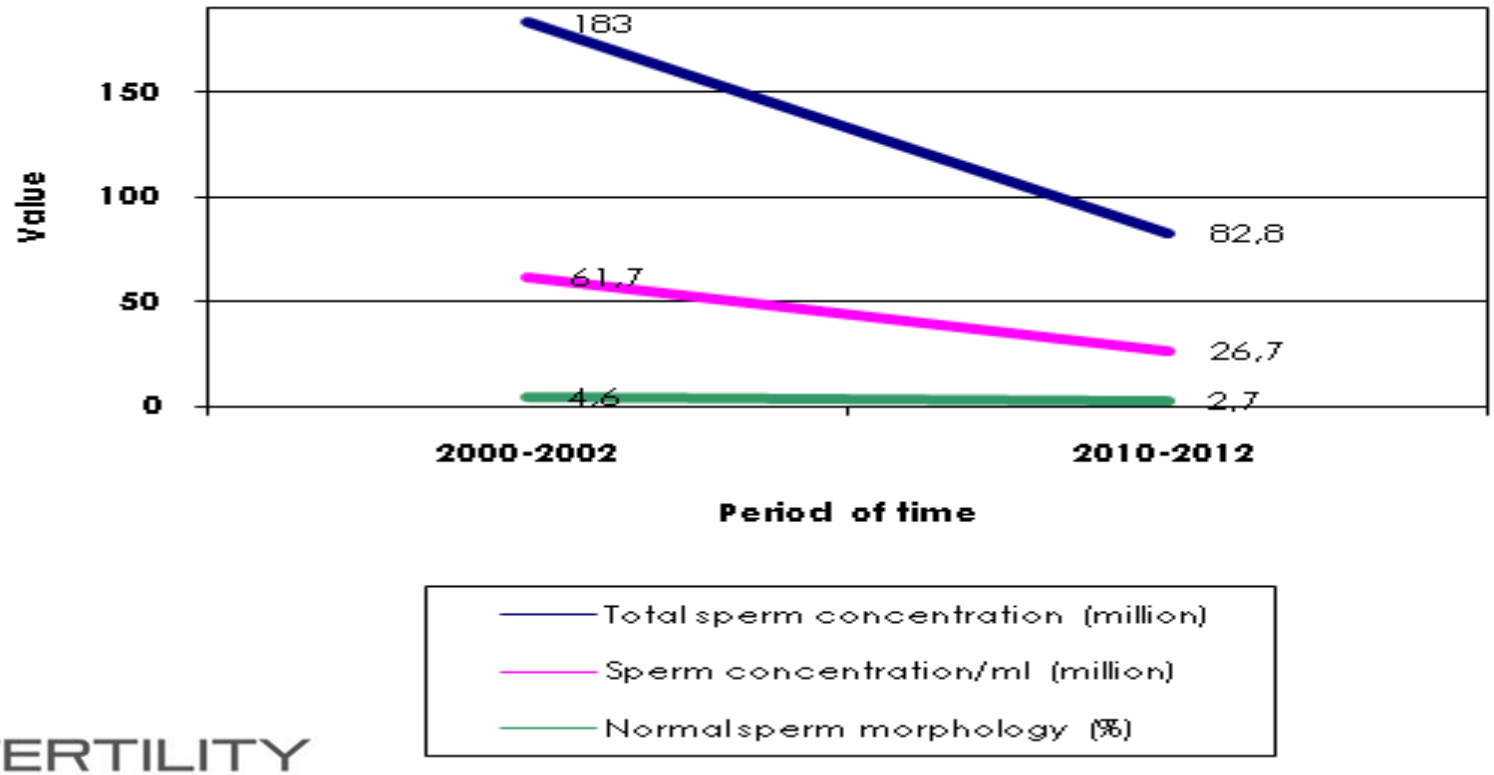
FIGURE 4. Trends in testicular cancer; age-standardized (world) incidence (regional or national), all ages. [Modified from Znaor et al. (481). Courtesy of Dr. Arinana Znaor and statistician Mathieu Laversanne, M.Sc., WHO, International Agency for Research in Cancer (IARC), Lyon, France.]

ORIGINAL ARTICLE

Vol. 41 (4): 757-763, July - August, 2015
doi: 10.1590/S1677-5538.IBJU.2014.0186

Decline in semen quality among infertile men in Brazil during the past 10 years

Edson Borges Jr. [1,2], Amanda Souza Setti [1,2], Daniela Paes de Almeida Ferreira Braga [1,2], Rita de Cassia Savio Figueira [1], Assumpto Iaconelli Jr. [1,2]



FERTILITY

ORIGINAL ARTICLE

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Variable	2000 - 2002 (n=764)	2010 - 2012 (n=1536)	*p*
Azoospermia	4.9%	8.5%	<0.001
Severe oligozoospermia	15.7%	30.3%	<0.001

FERTILITY

Article

H E T

Human and Experimental Toxicology
1–9

DOI: 10.1177/0960327117703690
journals.sagepub.com/home/het
SAGE

Decline in sperm count in European men during the past 50 years

P Sengupta[1,2], E Borges Jr[3], S Dutta[4] and E Krajewska-Kulak[2]

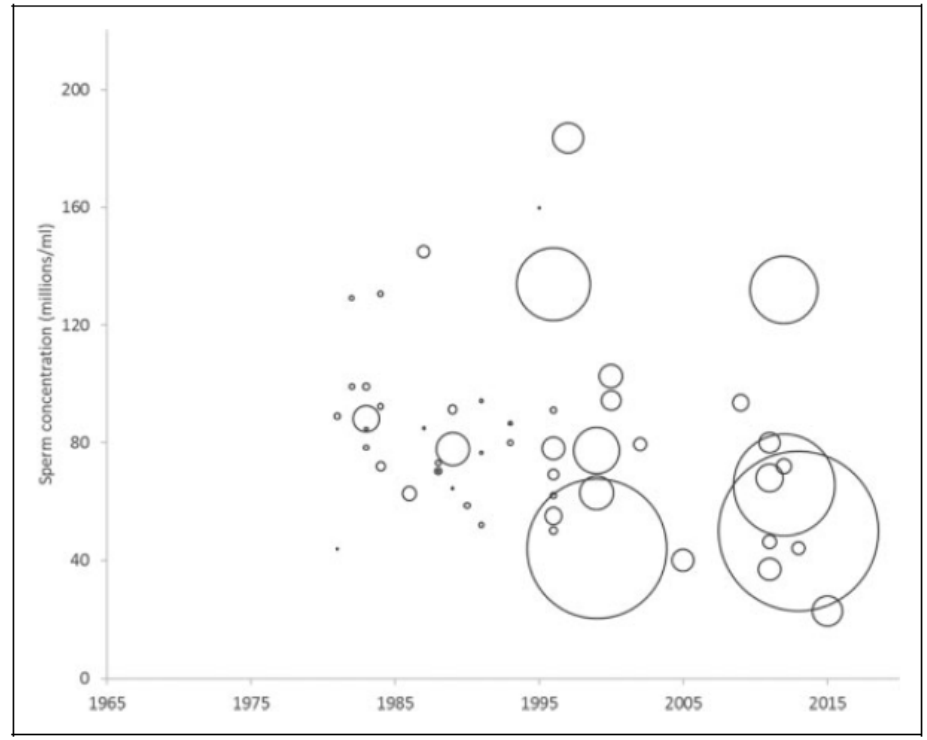
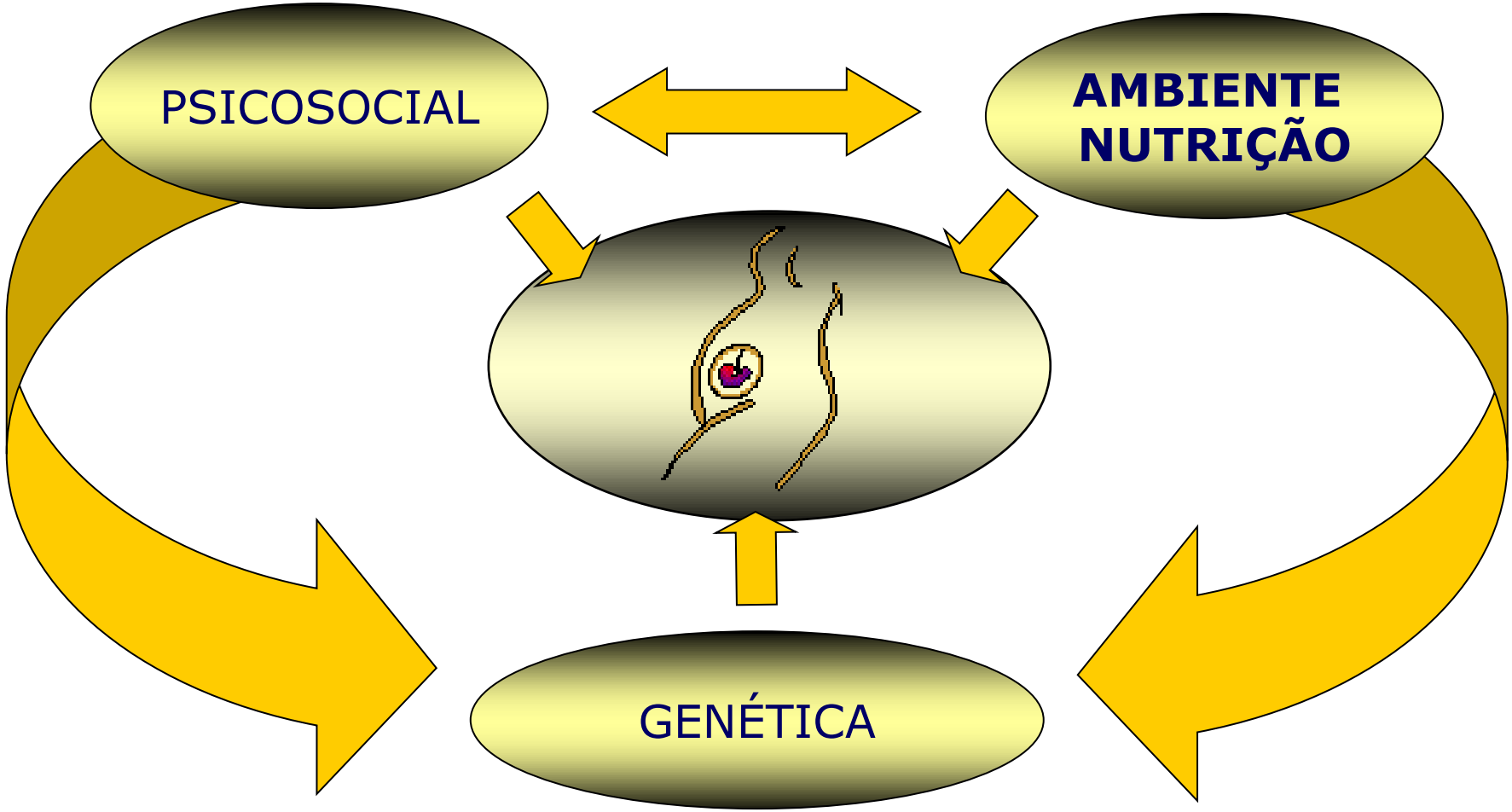


Figure 1. Temporal decline in sperm concentration ($\times 10^6$/ml) from 1965 to 2015, bubble size corresponds to the number of men in the study.

A time dependent decline in sperm concentration was observed from 1965 to 2015 (r=0.307, p=0.02)

An overall 32.5% decrease in mean sperm concentration

FERTILITY



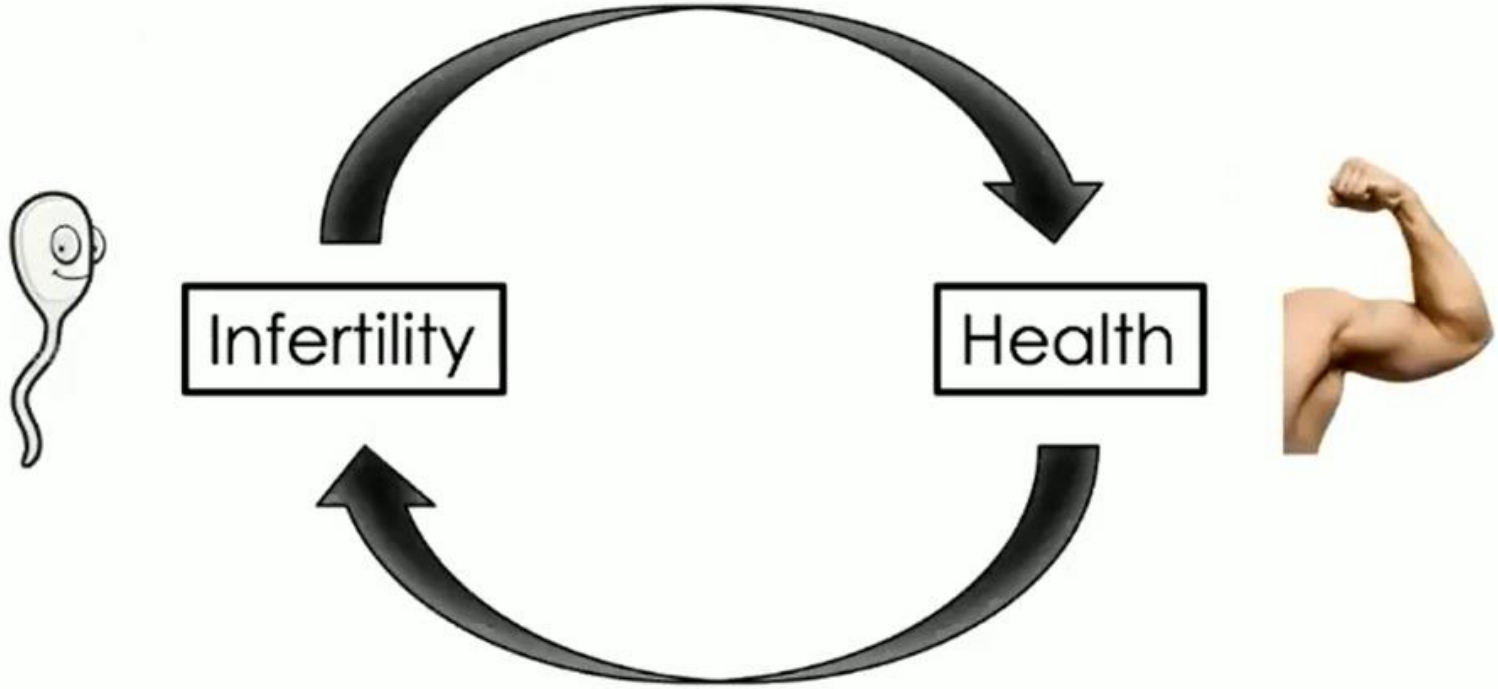
FERTILITY

O sexto sinal vital:

O que o espermatozoide está tentando nos dizer?

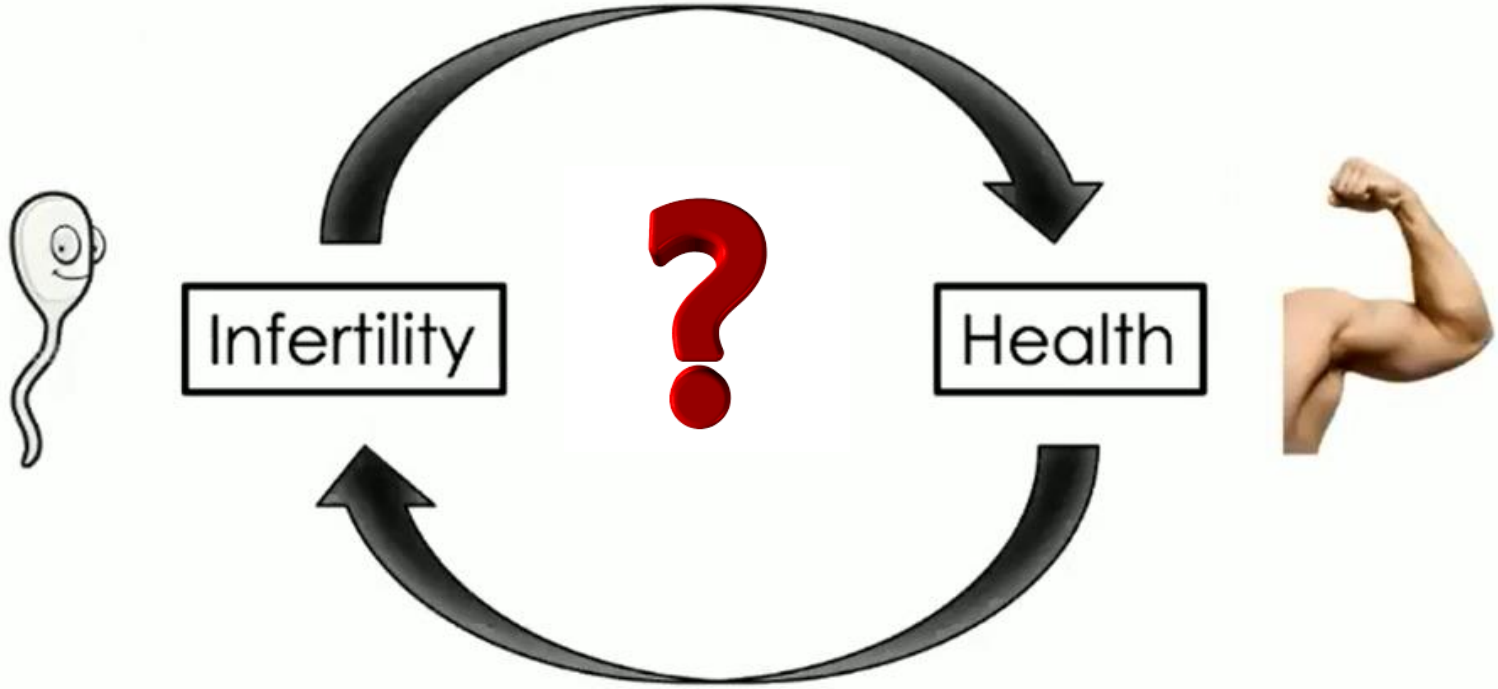
FERTILITY

Understanding the Relationship



FERTILITY

Understanding the Relationship

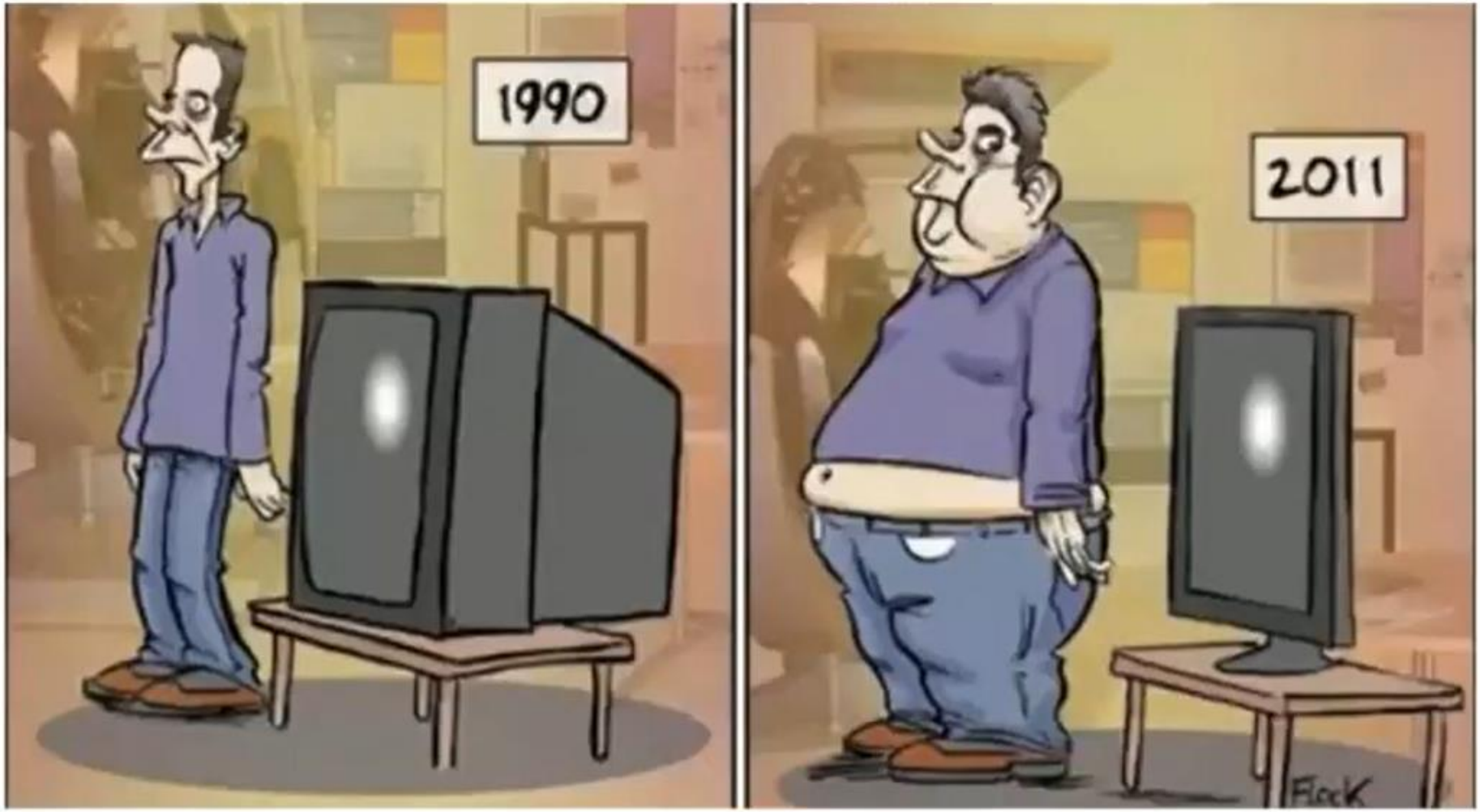


FERTILITY

Infertilidade, estilo de vida e saúde futura

FERTILITY

Obesidade



FERTILITY

Obesity and reproduction: a committee opinion

Practice Committee of the American Society for Reproductive Medicine

American Society for Reproductive Medicine, Birmingham, Alabama

Fertility and Sterility® Vol. 104, No. 5, November 2015

- The prevalence of obesity as a worldwide epidemic has increased dramatically over the past two decades.
- In the United States alone, almost two thirds of women and three fourths of men are overweight or obese, as are nearly 50% of women of reproductive age and 17% of their childreen ages 2–19 years.

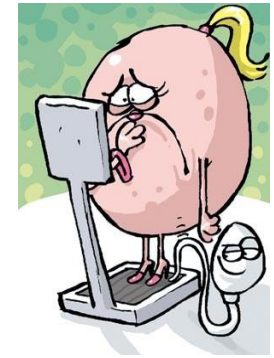
FERTILITY

Human Reproduction Update Advance Access published December 12, 2012
Human Reproduction Update, Vol.0, No.0 pp. 1–11, 2012
doi:10.1093/humupd/dms050
human reproduction update

BMI in relation to sperm count: an updated systematic review and collaborative meta-analysis

N. Sermondade[1,2], C. Faure[1,2], L. Fezeu[2], A.G. Shayeb[3], J.P. Bonde[4], T.K. Jensen[5], M. Van Wely[6], J. Cao[7], A.C. Martini[8], M. Eskandar[9], J.E. Chavarro[10,11], S. Koloszar[12], J.M. Twigt[13], C.H. Ramlau-Hansen[14], E. Borges Jr[15], F. Lotti[16], R.P.M. Steegers-Theunissen[13], B. Zorn[17], A.J. Polotsky[18], S. La Vignera[19], B. Eskenazi[20], K. Tremellen[21], E.V. Magnusdottir[22], I. Fejes[23], S. Hercberg[2,24], R. Lévy[1,2†], and S. Czernichow[25,26,*†]

- ***21 estudos, 13.077 homens da população geral e em investigação de infertilidade***
- ***Estudo da relação entre BMI e incidência de oligozoospermia / azoospermia***
- ***Comparados com homens com peso normal:***
  - Sobpeso: OR= 1,15 (0,93-1,43)
  - Sobrepeso: OR= 1,11 (1,01-1,21)
  - Obeso: OR= 1,28 (1,06-1,55)
  - Obeso mórbido: OR= 2,04 (1,59-2,62)



FERTILITY

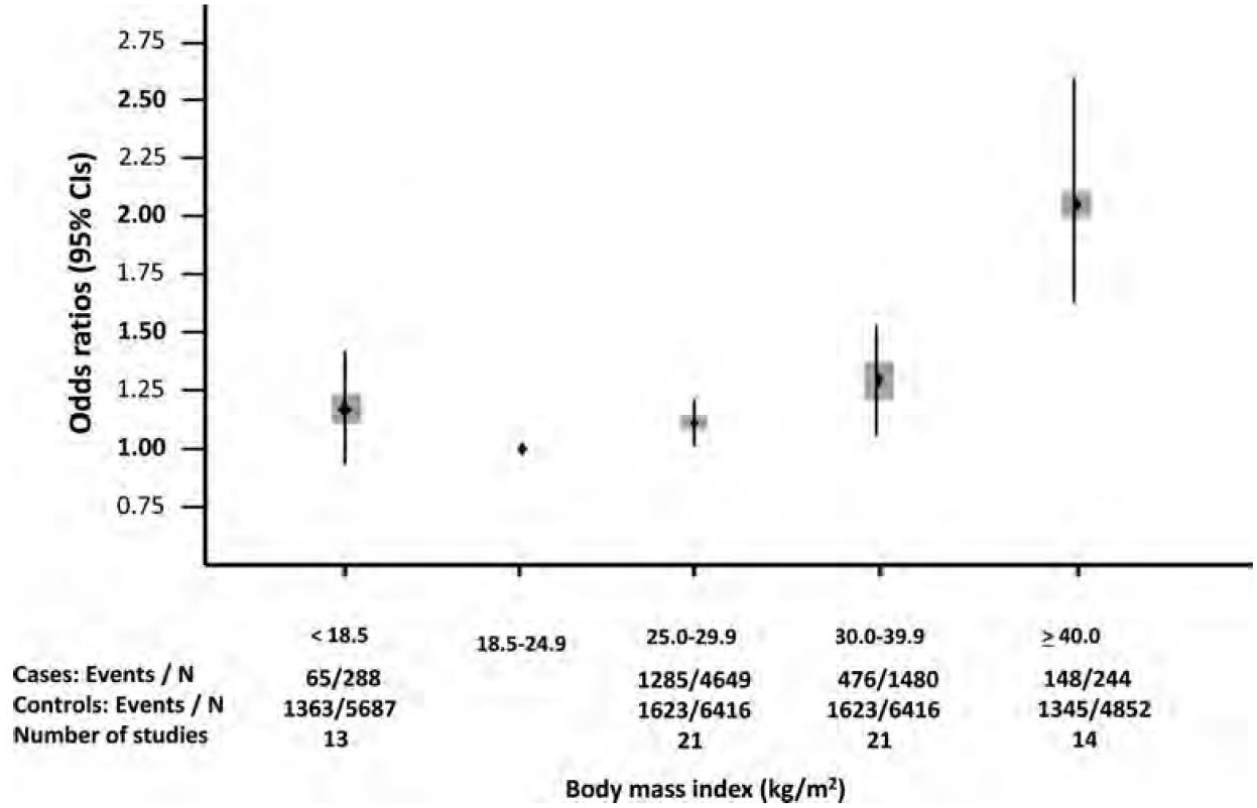
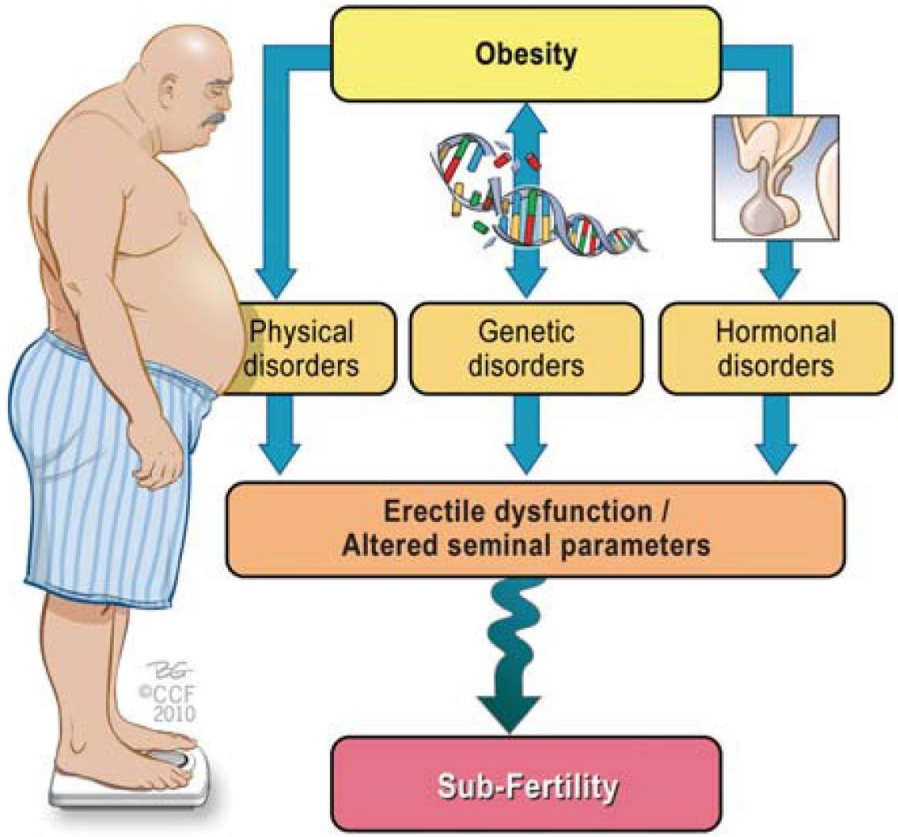


Figure 2 Association between BMI and abnormal TCS (oligozoospermia or azoospermia) according to categories of BMI.



Physical mechanims:

- *endothelial dysfunction*
- ***Reduced testosterone levels***
- *hypogonadism and ED*

Environmental toxins:

- *disrupt the normal hormone profile*

Hormonal:

- *decreased Leydig cell T secretion*

Alimentação e Hábitos

FERTILITY

Food intake and social habits in male patients and its relationship to intracytoplasmic sperm injection outcomes

Daniela Paes de Almeida Ferreira Braga, D.V.M., M.Sc.,[a,b] Gabriela Halpern, M.Sc.,[a] Rita de Cássia S. Figueira, M.Sc.,[a] Amanda S. Setti, B.Sc.,[b] Assumpto Iaconelli Jr., M.D.,[a] and Edson Borges Jr., M.D., Ph.D.[a,b]

Fertility and Sterility® Vol. 97, No. 1, January 2012

- Influência dos hábitos sociais e alimentares no sêmen e nos resultados de ICSI
- Estudo coorte observacional com 250 homens tratados com ICSI

FERTILITY

Food intake and social habits in male patients and its relationship to intracytoplasmic sperm injection outcomes

Daniela Paes de Almeida Ferreira Braga, D.V.M., M.Sc.,[a,b] Gabriela Halpern, M.Sc.,[a] Rita de Cássia S. Figueira, M.Sc.,[a] Amanda S. Setti, B.Sc.,[b] Assumpto Iaconelli Jr., M.D.,[a] and Edson Borges Jr., M.D., Ph.D.[a,b]

Fertility and Sterility® Vol. 97, No. 1, January 2012

- ***Concentração***: negativamente influenciada pelo IMC e álcool; positivamente influenciada pelo consumo de cereal e nº. refeições/dia

- ***Motilidade***: negativamente influenciada pelo IMC, álcool e cigarro; positivamente influenciada pelo consumo de cereal e frutas

FERTILITY

Food intake and social habits in male patients and its relationship to intracytoplasmic sperm injection outcomes

Daniela Paes de Almeida Ferreira Braga, D.V.M., M.Sc.,[a,b] Gabriela Halpern, M.Sc.,[a] Rita de Cássia S. Figueira, M.Sc.,[a] Amanda S. Setti, B.Sc.,[b] Assumpto Iaconelli Jr., M.D.,[a] and Edson Borges Jr., M.D., Ph.D.[a,b]

Fertility and Sterility® Vol. 97, No. 1, January 2012

- ***Álcool:*** *impacto negativo na fertilização*

- ***Carne vermelha e dieta (perda peso)*****:** impacto negativo na implantação / diminui as chances de gestação

FERTILITY

Reproductive BioMedicine Online (2015) 31, 30–38

www.sciencedirect.com
www.rbmonline.com

ARTICLE

The impact of food intake and social habits on embryo quality and the likelihood of blastocyst formation

Daniela Paes Almeida Ferreira Braga [a,*], Gabriela Halpern [a], Amanda S Setti [b], Rita Cássia S Figueira [a], Assumpto Iaconelli Jr [a], Edson Borges Jr [a]

2659 embriões – 269 pacientes submetidas a ICSI

- ***Qualidade embrionária em estágio de clivagem***: negativamente influenciada pelo álcool e cigarro; positivamente influenciada pelo consumo de cereal, vegetais e frutas

- ***Formação de blastocisto***: negativamente influenciada pelo consumo de carne vermelha, perda de peso (dieta), álcool e cigarro; positivamente influenciada pelo consumo frutas e peixes

FERTILITY

Reproductive BioMedicine Online (2015) 31, 30–38

www.sciencedirect.com
www.rbmonline.com

ELSEVIER

ARTICLE

The impact of food intake and social habits on embryo quality and the likelihood of blastocyst formation

Daniela Paes Almeida Ferreira Braga [a,*], Gabriela Halpern [a], Amanda S Setti [b], Rita Cássia S Figueira [a], Assumpto Iaconelli Jr [a], Edson Borges Jr [a]

- Consumo de carne vermelha, peso e dietas influenciam **negativamente as taxas de implantação e gestação**

FERTILITY

Impacto da orientação nutricional em resultados de ciclos de reprodução assistida

JBRA Assist. Reprod. | V. 17 | nº1 | Jan-Feb / 2013

Nutritional Counseling Impact on Assisted Reproduction Treatment Outcomes

Gabriela Halpern[1], Fátima Aparecida Arantes Sardinha[2], Amanda Setti[3], Assumpto Iaconelli Jr,[4] Edson Borges Jr[5]

- Fertilização (81.0% and 67.1% p = 0.0225)
- Gestação (46.9% and 28.6% p = 0.0396)

✓ Pacientes que receberam esta orientação tiveram ***2X mais chances de engravidar*** (OR: 2.27, p = 0.0408)

FERTILITY

Received: 7 March 2018 | Revised: 4 June 2018 | Accepted: 12 June 2018

DOI: 10.1111/and.13090

Check for updates

ORIGINAL ARTICLE

WILEY First International Journal of Andrology ANDROLOGIA

Paternal lifestyle factors in relation to semen quality and in vitro reproductive outcomes

Edson Borges Jr[1,2] | Daniela Paes de Almeida Ferreira Braga[1,2] | Rodrigo R. Provenza[1] | Rita de Cassia Savio Figueira[1] | Assumpto Iaconelli Jr[1,2] | Amanda Souza Setti[1,2]

- 965 homens estudaods
- 233 fizeram ICSI
- Fator masculino isolado
- 1º. ciclo de tratamento
- Idade mulher < 36 anos

1. Quantos cigarros/dia?
2. Consumo semanal de álcool?
3. Frequência de exercícios ?
4. Medicações nos últimos 3 meses? Qual?
5. Exposição a agentes tóxicos, pesticidas, radiação etc..

FERTILITY

TABLE 2 Linear regression analyses' results for the influence of paternal lifestyle factors on semen quality (n = 965)

	Cigarette smoking		Alcohol consumption		Occupation exposure		Physical activity		Medication use	
Lifestyle factors	*B*	*p*	*B*	*p*	*B*	*p*	*B*	*p*	*B*	*p*
Semen quality										
Semen volume	−0.417	0.047	−0.1363	0.592	−0.2611	0.702	0.1146	0.436	0.0219	0.880
Sperm count/ml	−7.363	0.014	−12.527	0.040	−31.10	0.169	−3.329	0.494	0.984	0.838
Total sperm count	−4.43	0.023	−34.91	0.156	−80.79	0.299	5.85	0.728	−2.75	0.868
Total sperm motility	2.316	0.347	0.342	0.895	−7.362	0.285	−0.728	0.617	−0.595	0.684
Progressive sperm motility	−0.369	0.887	2.547	0.240	−7.660	0.297	−0.983	0.528	−0.225	0.885
TMSC	−1.38	0.045	−16.33	0.278	−43.23	0.330	0.094	0.992	−1.319	0.889
Sperm morphology	−0.0563	0.779	0.3751	0.180	0.2071	0.713	−0.1977	0.098	−0.0633	0.598
SDF	0.014	0.033	5.833	0.002	−2.334	0.586	−1.1684	0.221	0.6005	0.521

Note. B: unstandardised regression coefficient; SDF: sperm DNA fragmentation; TMSC: total motile sperm count.

FERTILITY

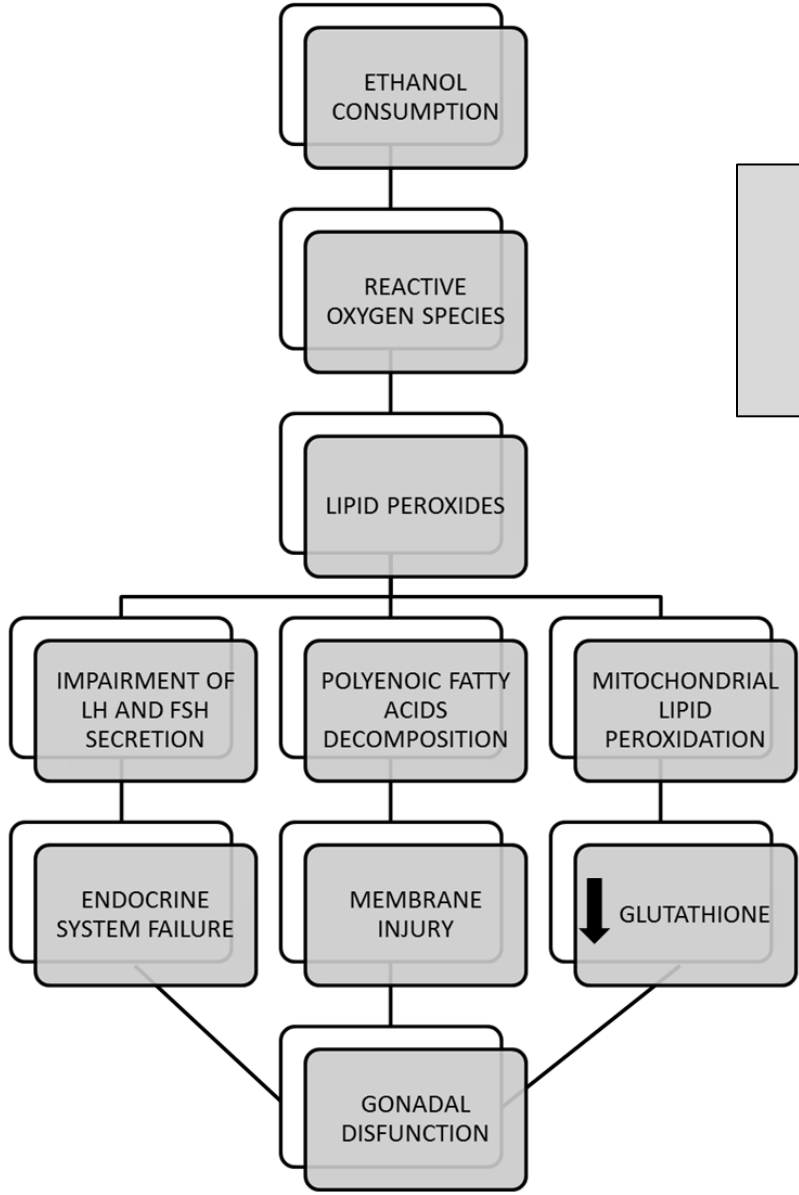
Andrologia. 2018;e13090.
https://doi.org/10.1111/and.13090

TABLE 3 Linear regression analyses' results for the association between paternal lifestyle factors and ICSI outcomes (n = 233)

	Cigarette smoking		Alcohol consumption		Occupation exposure		Physical activity		Medication use	
Lifestyle factors	***B***	***p***	***B***	***p***	***B***	***p***	***B***	***p***	***B***	***p***
ICSI outcomes										
Fertilisation rate	−1.349	0.039	−3.617	0.041	3.71	0.759	1.600	0.473	−2.236	0.406
High-quality embryos rate on day 3	4.383	0.450	9.559	0.166	−11.24	0.619	1.359	0.704	6.925	0.182
Blastocyst formation rate on day 5	−14.244	0.025	−34.801	0.042	0.13	0.996	−6.411	0.111	−3.691	0.548
Implantation rate	5.384	0.451	−0.770	0.190	−23.94	0.475	−2.913	0.469	9.502	0.142

Note. B: unstandardised regression coefficient; ICSI: intracytoplasmic sperm injection

Andrologia. 2018;e13090.
https://doi.org/10.1111/and.13090



- 8 drinks/week or > 40g/day:
disrupt spermatogenesis
- > 80g/day:
spermatogenesis arrest /SCOS

FERTILITY

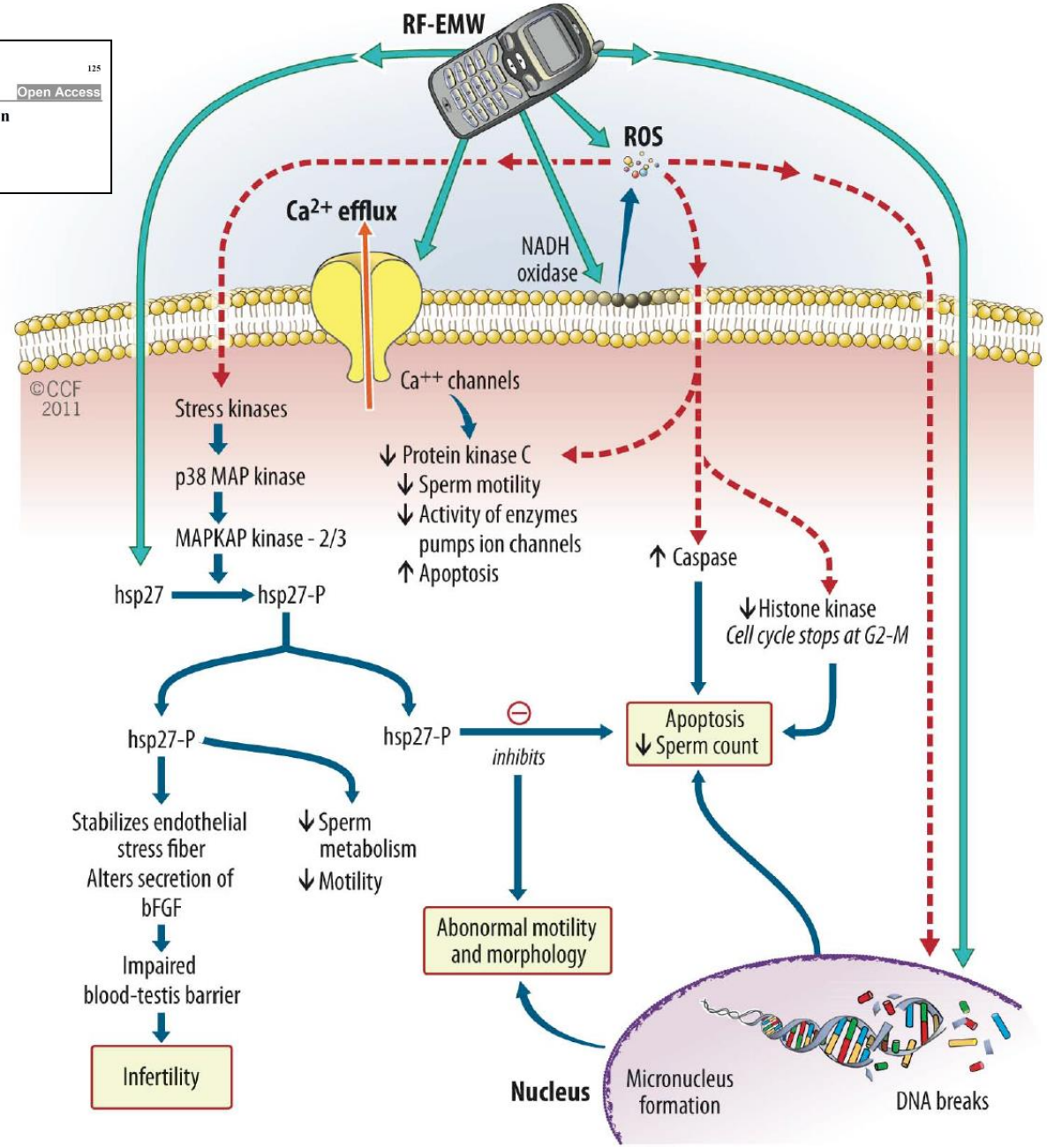
The Open Reproductive Science Journal, 2011, *5*, 125-137 125

Open Access

Cell Phones and their Impact on Male Fertility: Fact or Fiction

Alaa J. Hamada, Aspinder Singh and Ashok Agarwal*

Center for Reproductive Medicine, Cleveland Clinic, Cleveland, Ohio, USA



EFFECT OF ELECTROMAGNETIC RADIATION EMITTED BY CELL PHONES ON SPERM MOTILITY AND VIABILITY - AN IN VITRO STUDY

Kajal Khodamoradi
University of Miami Miller School of Medicine

- Cell phones emit radiofrequency–electromagnetic radiation (RF-EMR) to transmit data for social media, web browsing, and music / podcast streaming.

- The advent of Bluetooth earbuds has presumably prolonged the amount of time the cell phone resides in the trouser pockets of men. This places the cell phone and its respective RF-EMR near the testicles for prolonged times.

- RF-EMR is considered an environmental pollutant and has been postulated to **increase oxidative stress and induce free radical formation**

FERTILITY

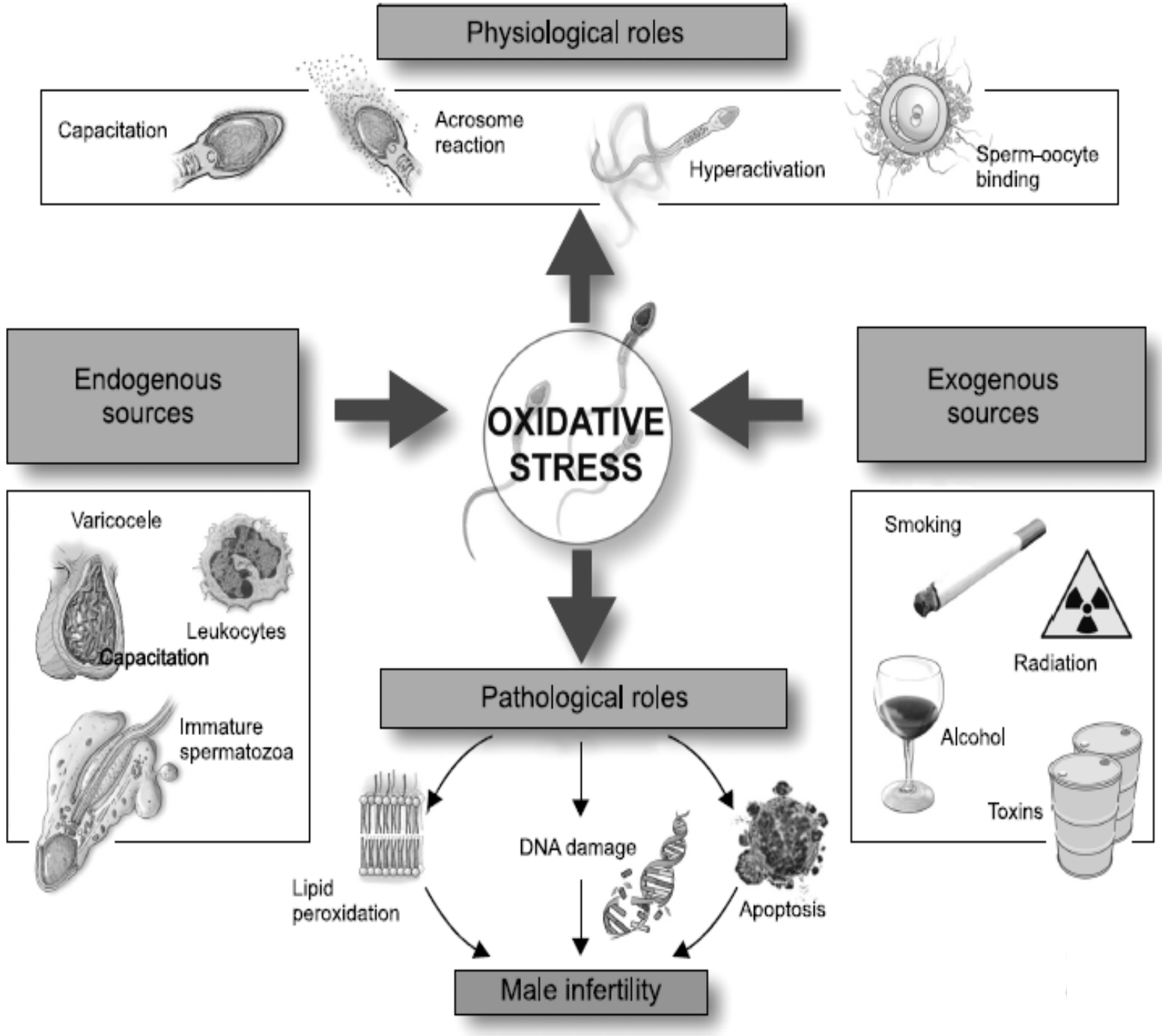
EFFECT OF ELECTROMAGNETIC RADIATION EMITTED BY CELL PHONES ON SPERM MOTILITY AND VIABILITY - AN IN VITRO STUDY

Kajal Khodamoradi
University of Miami Miller School of Medicine

- In this pilot, but adequately powered study, we observed th sperm motility and viability are negatively impacted with smartphones that utilized data **on the WIFI spectrum**.

- It appears that heat that is emanated from the device contributes to this effect, as **the device was noted to be warmer** than when phones were used only with either 4G or 5G.

FERTILITY


Physiological roles
Capacitation
Acrosome reaction
Hyperactivation
Sperm–oocyte binding
Endogenous sources
OXIDATIVE STRESS
Exogenous sources
Varicocele
Leukocytes
Capacitation
Immature spermatozoa
Smoking
Radiation
Alcohol
Toxins
Pathological roles
Lipid peroxidation
DNA damage
Apoptosis
Male infertility

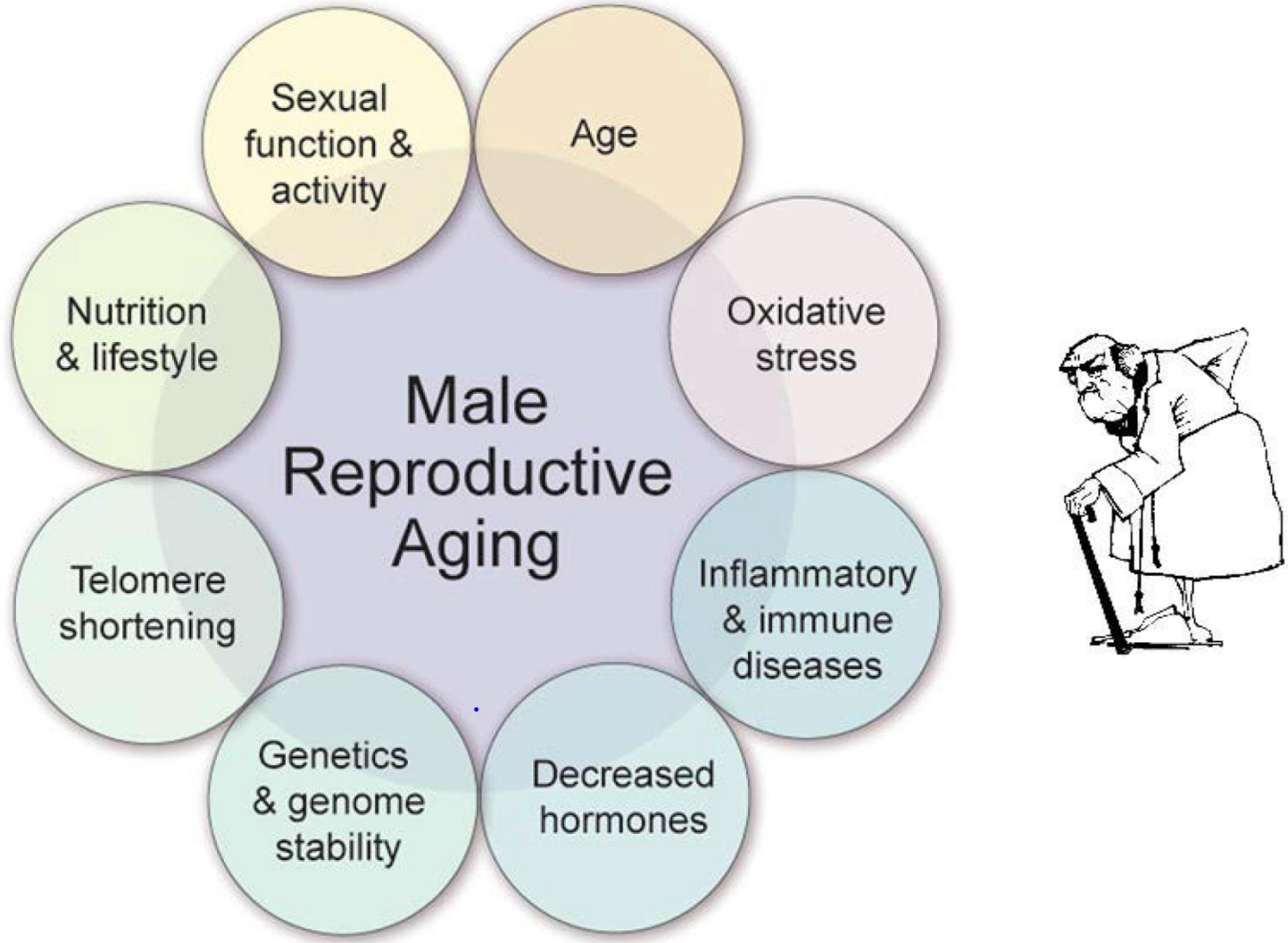
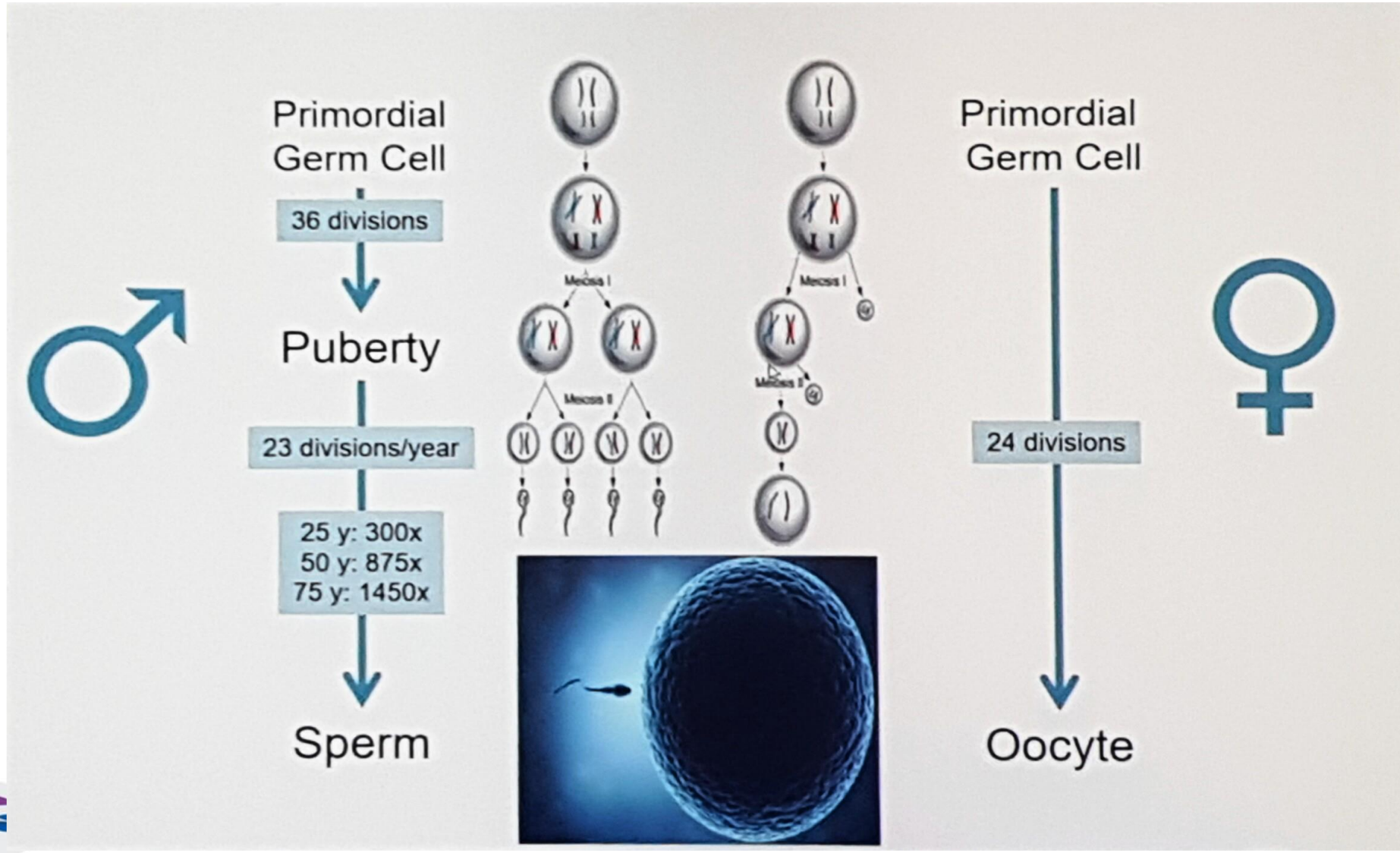
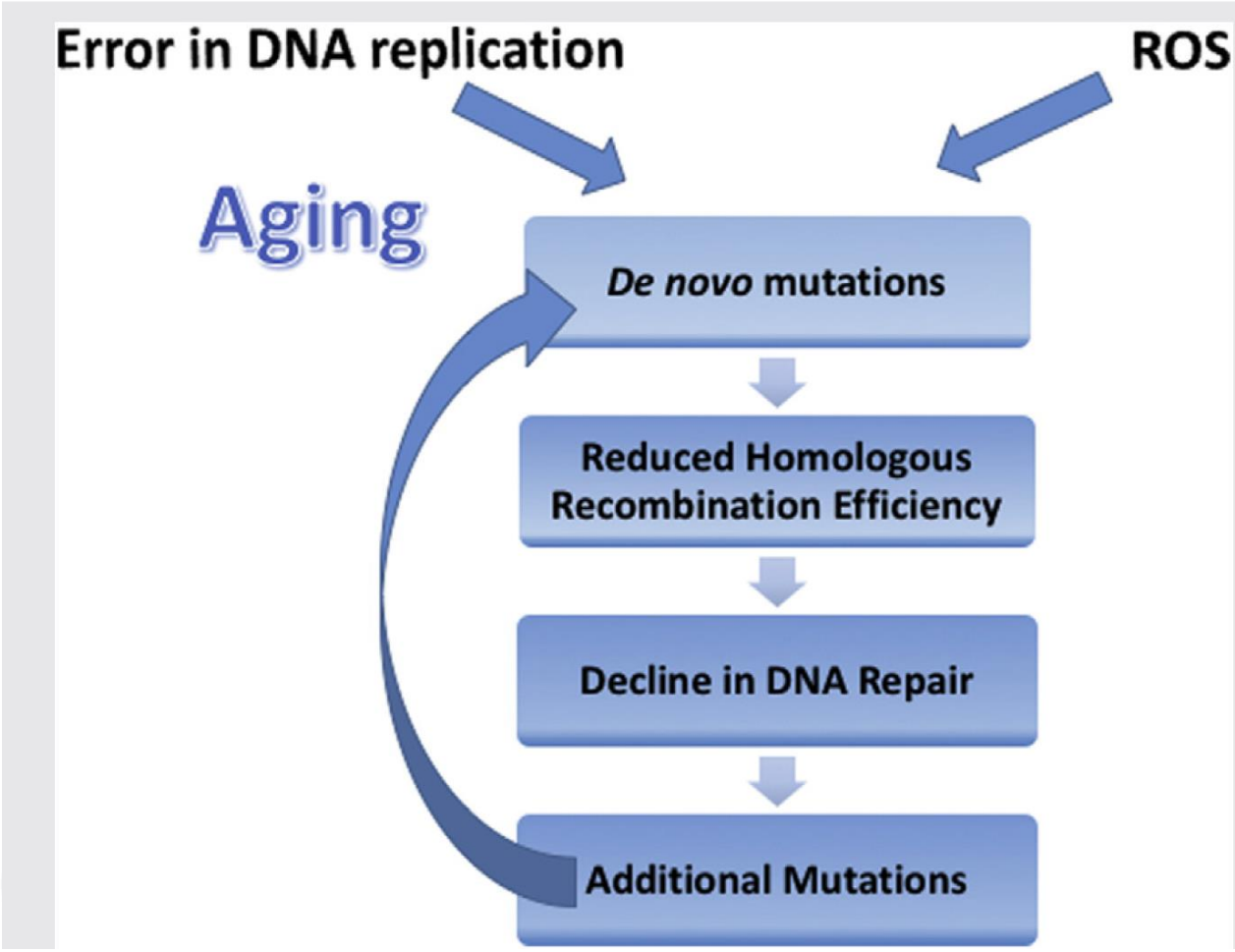


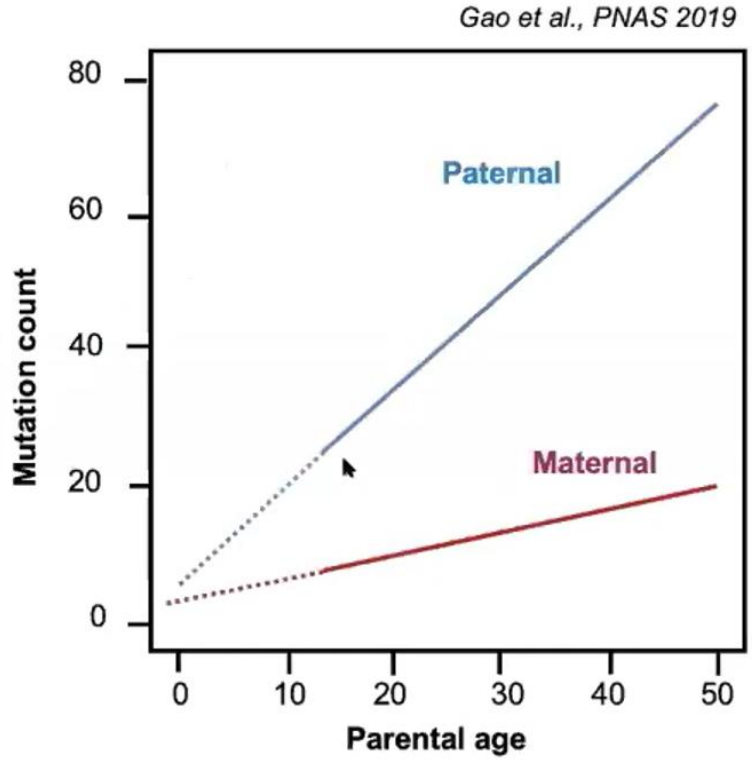
Figure 1 Main factors involved in impaired male infertility due to reproductive aging.

Diffferences in gametogenesis



Replications erros and de novo mutations





Received: 31 March 2021 | Revised: 29 July 2021 | Accepted: 30 July 2021

DOI: 10.1111/and.14211

ORIGINAL ARTICLE

First International Journal of Andrology
ANDROLOGIA
WILEY

Early and late paternal contribution to cell division of embryos in a time-lapse imaging incubation system

Amanda Souza Setti[1,2] | Daniela Paes de Almeida Ferreira Braga[1,2] | Livia Vingris[3] | Assumpto Iaconelli Jr.[2,4] | Edson Borges Jr.[2,4]

FERTILITY

RESULTS

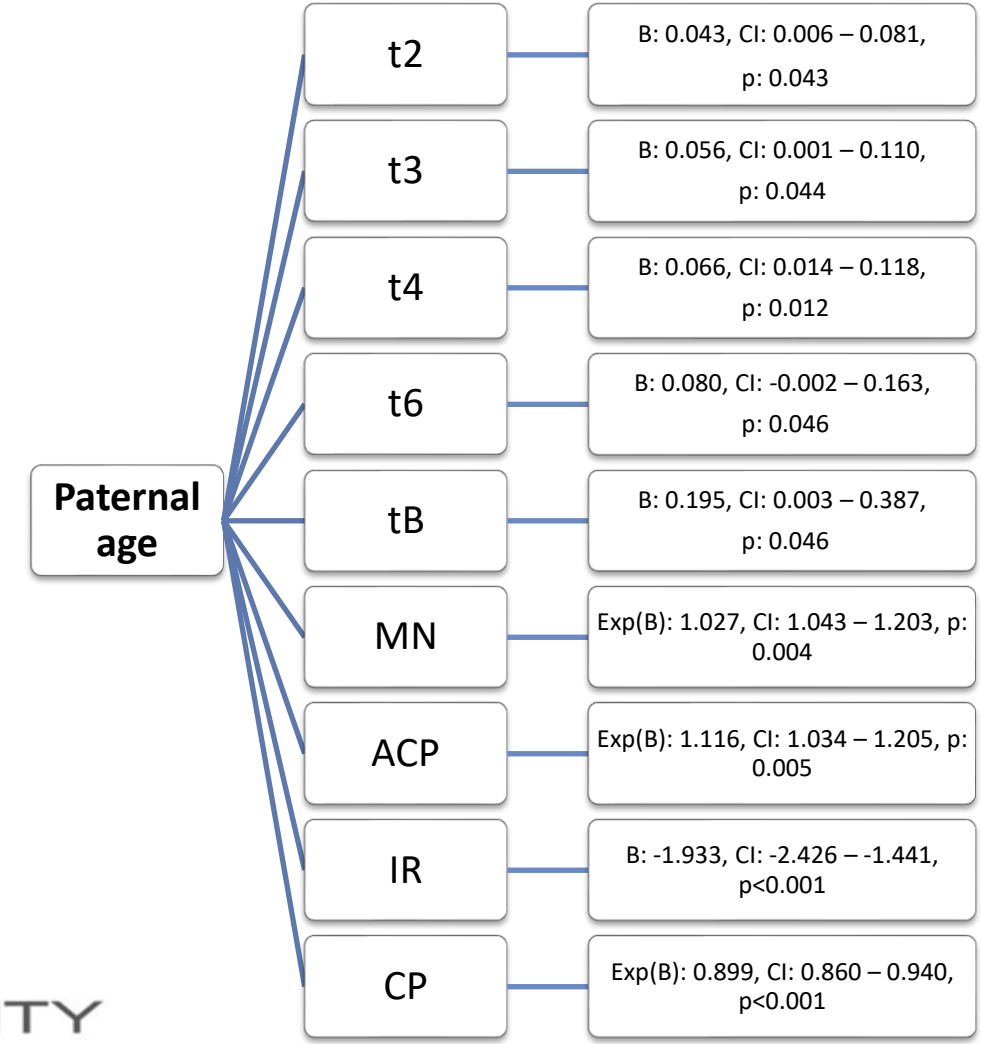
First International Journal of Andrology
aNDROLOGIa
Early and late paternal contribution to cell division of embryos in a time-lapse imaging incubation system

Variable	Mean ± SD
Semen analysis	
Male age (years)	41.3 ± 6.8
Ejaculatory abstinence length (days)	3.2 ± 2.5

RESULTS

First International Journal of Andrology
aNDROLOGIa

Early and late paternal contribution to cell division of embryos in a time-lapse imaging incubation system



FERTILITY

Received: 14 February 2022 | Revised: 20 April 2022 | Accepted: 9 May 2022

DOI: 10.1111/and.14485

ORIGINAL ARTICLE

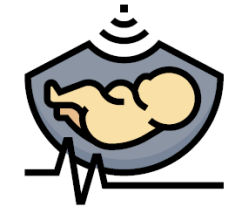
First International Journal of Andrology
ANDROLOGIA
WILEY

Paternal ageing impacts blastulation and the outcomes of pregnancy at different levels of maternal age: A clustering analysis of 21,960 oocytes and 3837 ICSI cycles

Amanda Souza Setti[1,2] | Daniela Paes de Almeida Ferreira Braga[1,2] | Patricia Guilherme[1] | Livia Vingris[1] | Assumpto Iaconelli Jr[1,2] | Edson Borges Jr[1,2]

FERTILITY

Variable	Value (n=3837)
Female age (y-old)	35.3 ± 4.5
Female BMI	24.2 ± 3.9
Male age (y-old)	38.0 ± 6.4

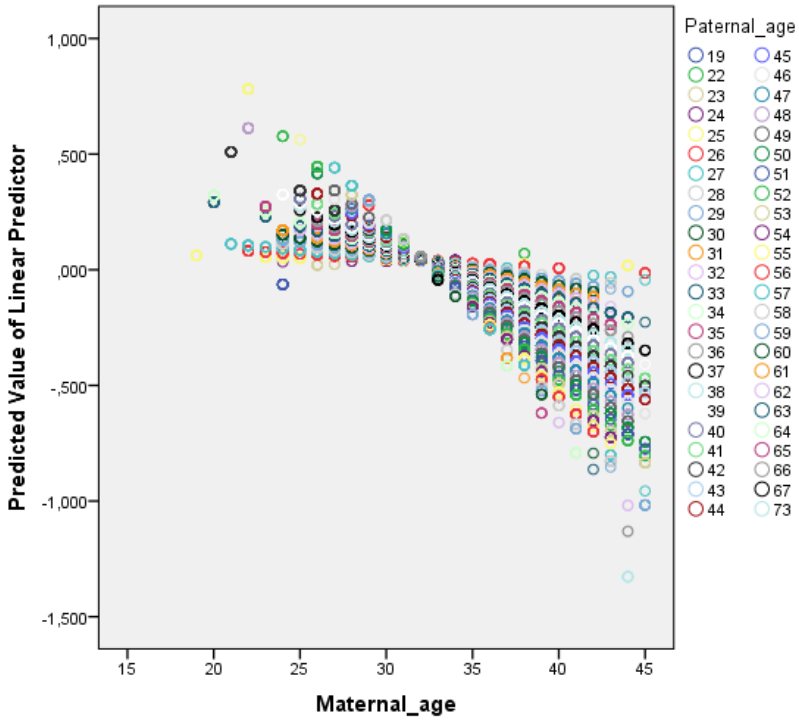


FERTILITY

Andrologia. 2022;e14485.
https://doi.org/10.1111/and.14485

Predective value of the interation term

Dependent variable	B	OR	CI	p-value
Blastocyst development	- 0.005	0.995	0.994 – 0.996	< 0.001

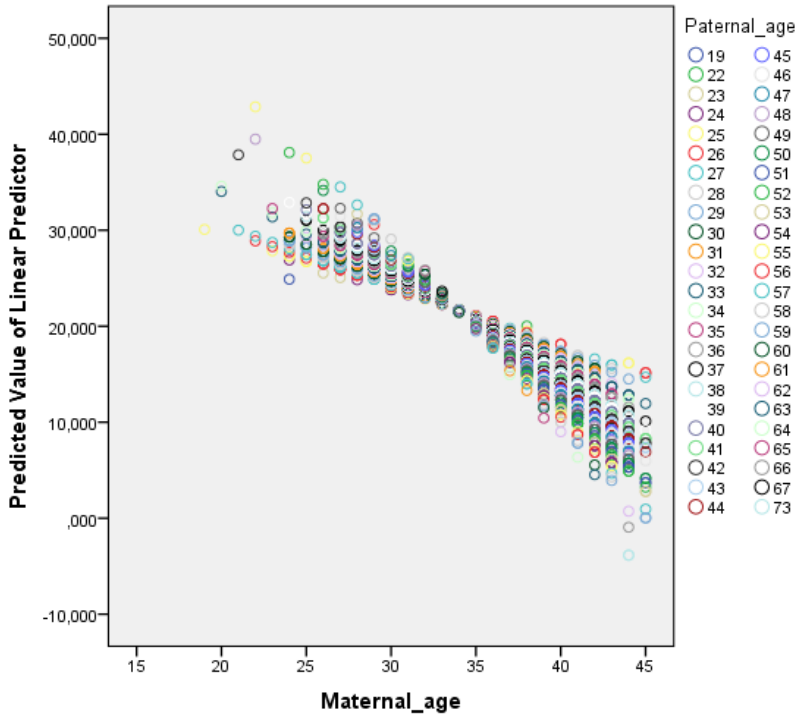


FERTILITY

Andrologia. 2022;e14485.
https://doi.org/10.1111/and.14485

Predective value of the interation term

Dependent variable	B	OR	CI	p-value
Implantation rate	- 0.041	0.960	0.947 – 0.973	< 0.001

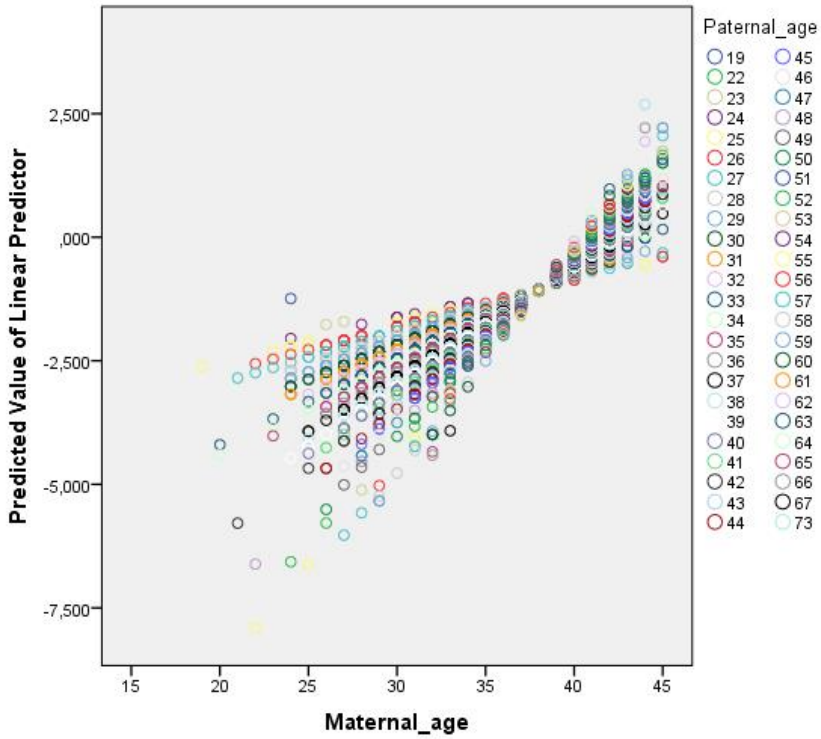


FERTILITY

Andrologia. 2022;e14485.
https://doi.org/10.1111/and.14485

Predective value of the interation term

Dependent variable	B	OR	CI	p-value
Miscarriage rate	0.011	1.012	1.005 – 1.018	0.001



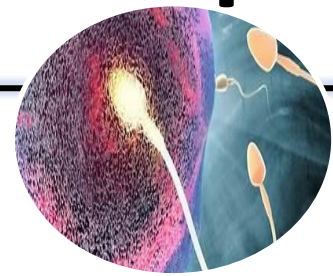
FERTILITY

Andrologia. 2022;e14485.
https://doi.org/10.1111/and.14485

For every ***1-year increase in paternal age***, the odds ratio of live-birth reduces by:

- **1%** in females aged 37 years,
- **1.6%** in those aged 38 years,
- **2.4%** in 39-year-old females,
- **5%** in 42-year-old females and so on.

Misleading concept



FERTILITY

Andrologia. 2022;e14485.
https://doi.org/10.1111/and.14485

Influence of paternal age on assisted reproductive technology cycles and perinatal outcomes

Audrey M. Marsidi, M.D.,[a] Lauren M. Kipling, M.P.H.,[b] Jennifer F. Kawwass, M.D.,[a] and Akanksha Mehta, M.D.[c]

[a] Division of Reproductive Endocrinology and Infertility, Department of Gynecology and Obstetrics, Emory Reproductive Center, Atlanta, Georgia; [b] Department of Epidemiology, Emory University Rollins School of Public Health, Atlanta, Georgia; and [c] Department of Urology, Emory University School of Medicine, Atlanta, Georgia

Fertil Steril 2021;116:380-7

- 77,209 fresh nondonor cycles
- Compared with paternal age ≤ 45 years, paternal age ≥ 46 years was associated with:
  - **a lower likelihood of pregnancy per cycle** (adjusted risk ratio [aRR] 0.81; 95% confidence interval [CI] 0.76–0.87) and per transfer (aRR 0.85; 95% CI 0.81–0.90);
  - **a lower likelihood of live birth per cycle** (aRR 0.76; 95% CI 0.72–0.84) **and per transfer** (aRR 0.82; 95% CI 0.77–0.88),
    (after controlling for maternal age and other confounders).

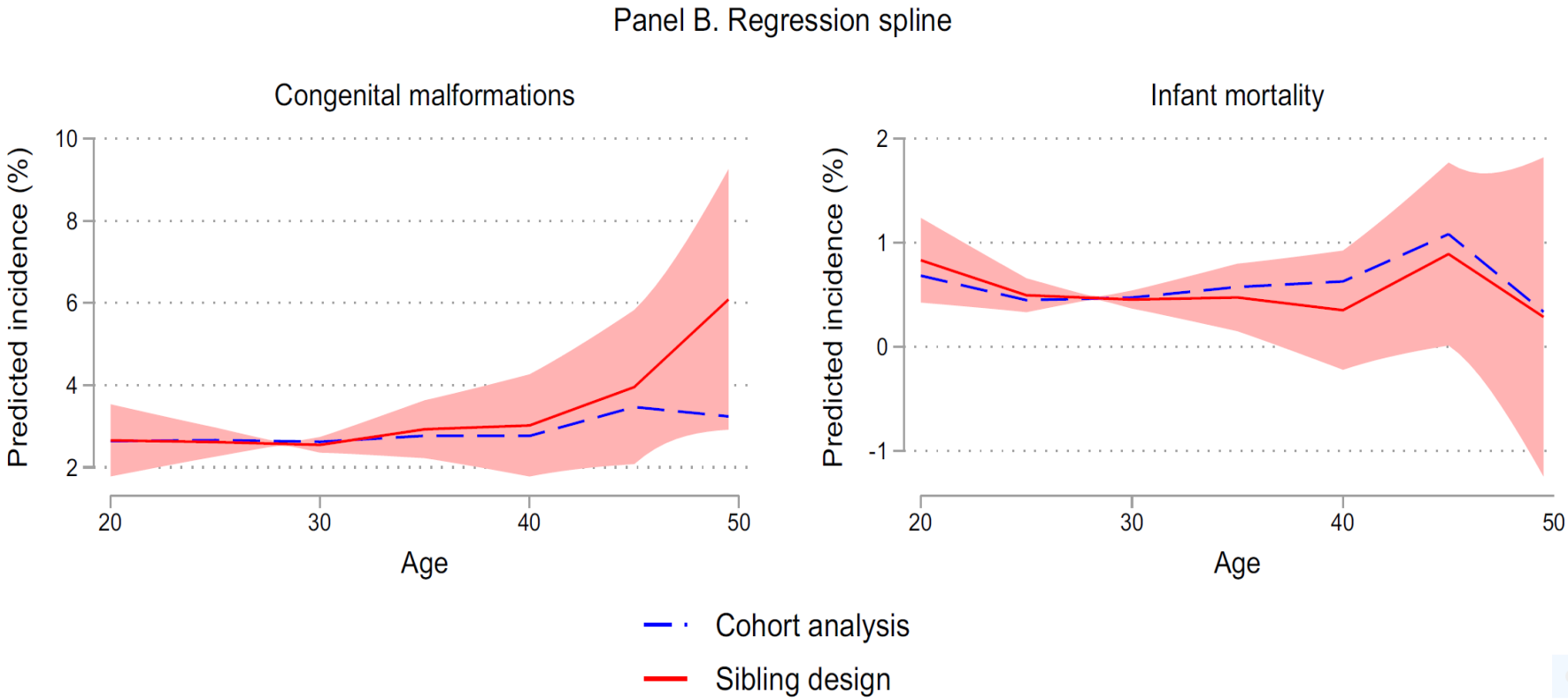
FERTILITY

European Journal of Epidemiology (2021) 36:849–860
https://doi.org/10.1007/s10654-021-00734-8

REPRODUCTIVE EPIDEMIOLOGY

Parental age and birth defects: a sibling study

Hans K. Hvide[1,2,3] · Julian Johnsen[4] · Kjell G. Salvanes[2,5,6,7,8]



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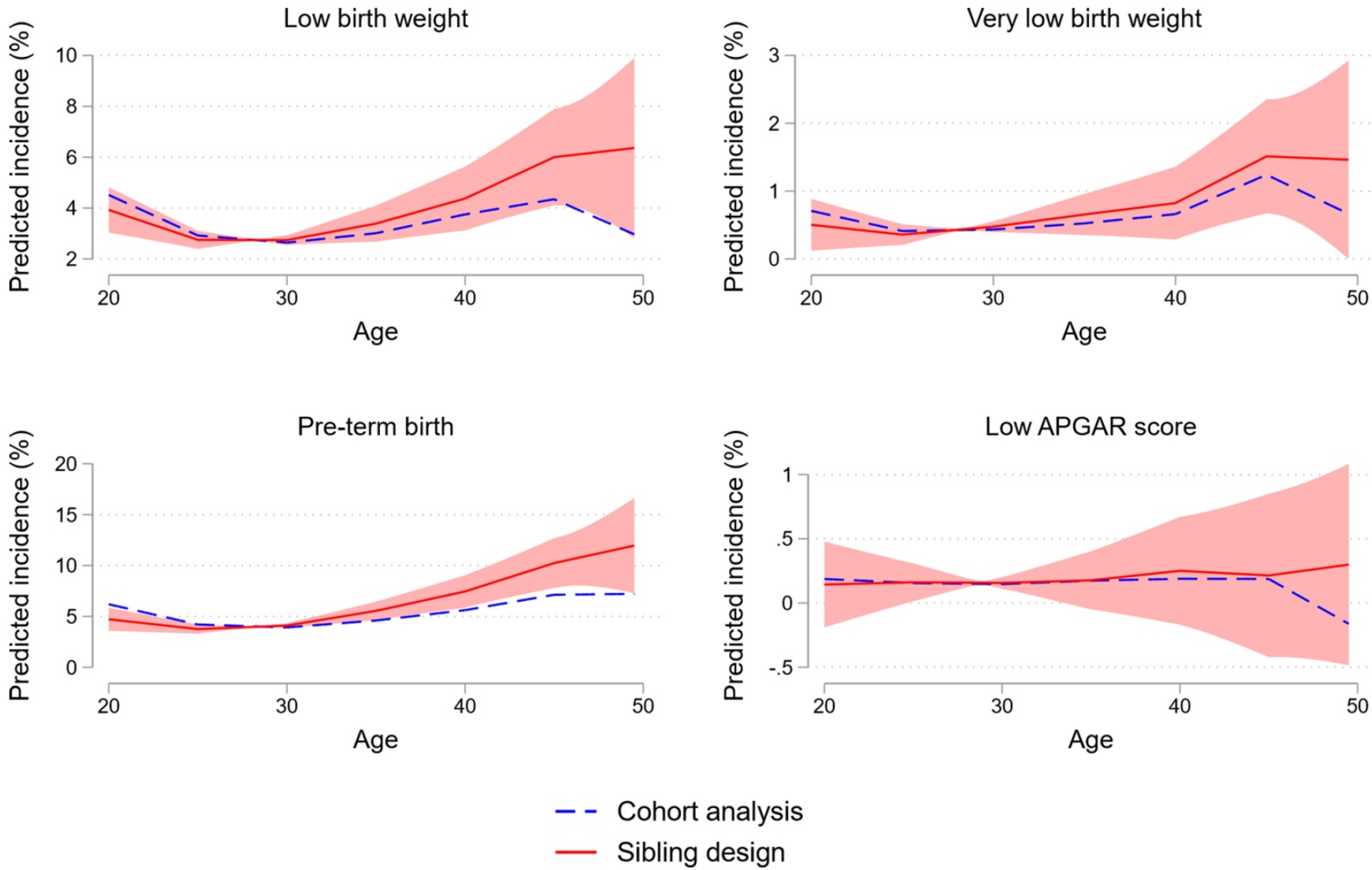

Infertility and Mortality

Social Factors
Partners & Kids

- Cohabitiation lowers mortality
- Children lower mortality

All Cause Mortality

Male characteristics	HR (95% CI)
Cohabiting custodial fathers	Reference

Weitoft et al, 2004

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Weitoft et al, 2004

FERTILITY

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Weitoft et al, 2004

FERTILITY

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Lone non custodial fathers	2.7 (2.5-2.8)
Cohabiting childless men	1.6 (1.5-1.7)
Lone childless	2.9 (2.8-3.0)

Weitoft et al, 2004

Relationship between Semen Quality and Mortality

American Journal of Epidemiology

Vol. 170, No. 5
DOI: 10.1093/aje/kwp168
Advance Access publication July 27, 2009

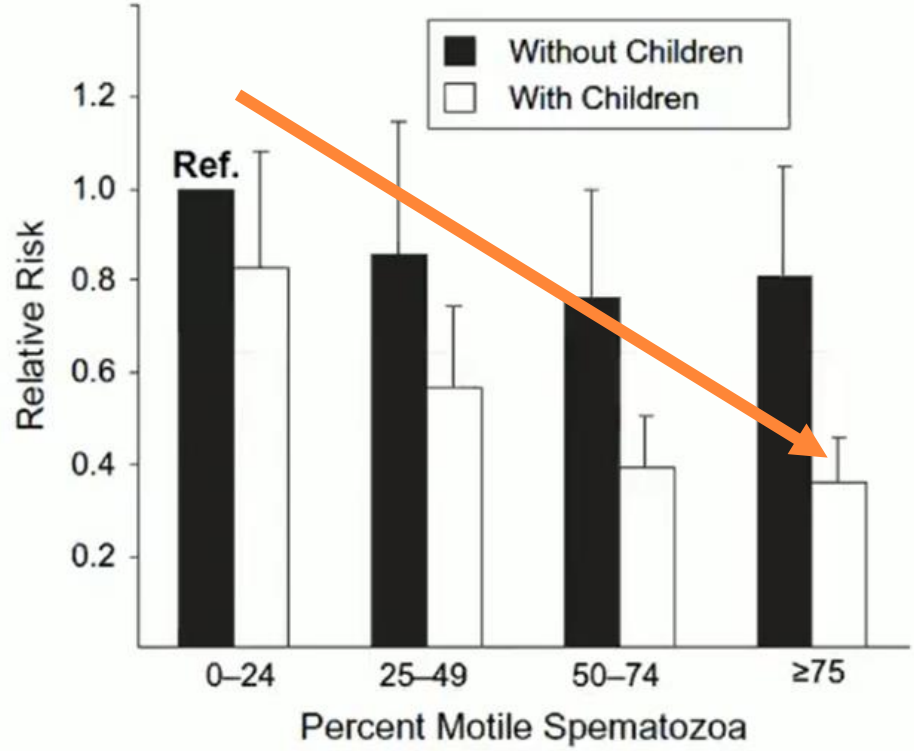
Original Contribution

Good Semen Quality and Life Expectancy: A Cohort Study of 43,277 Men

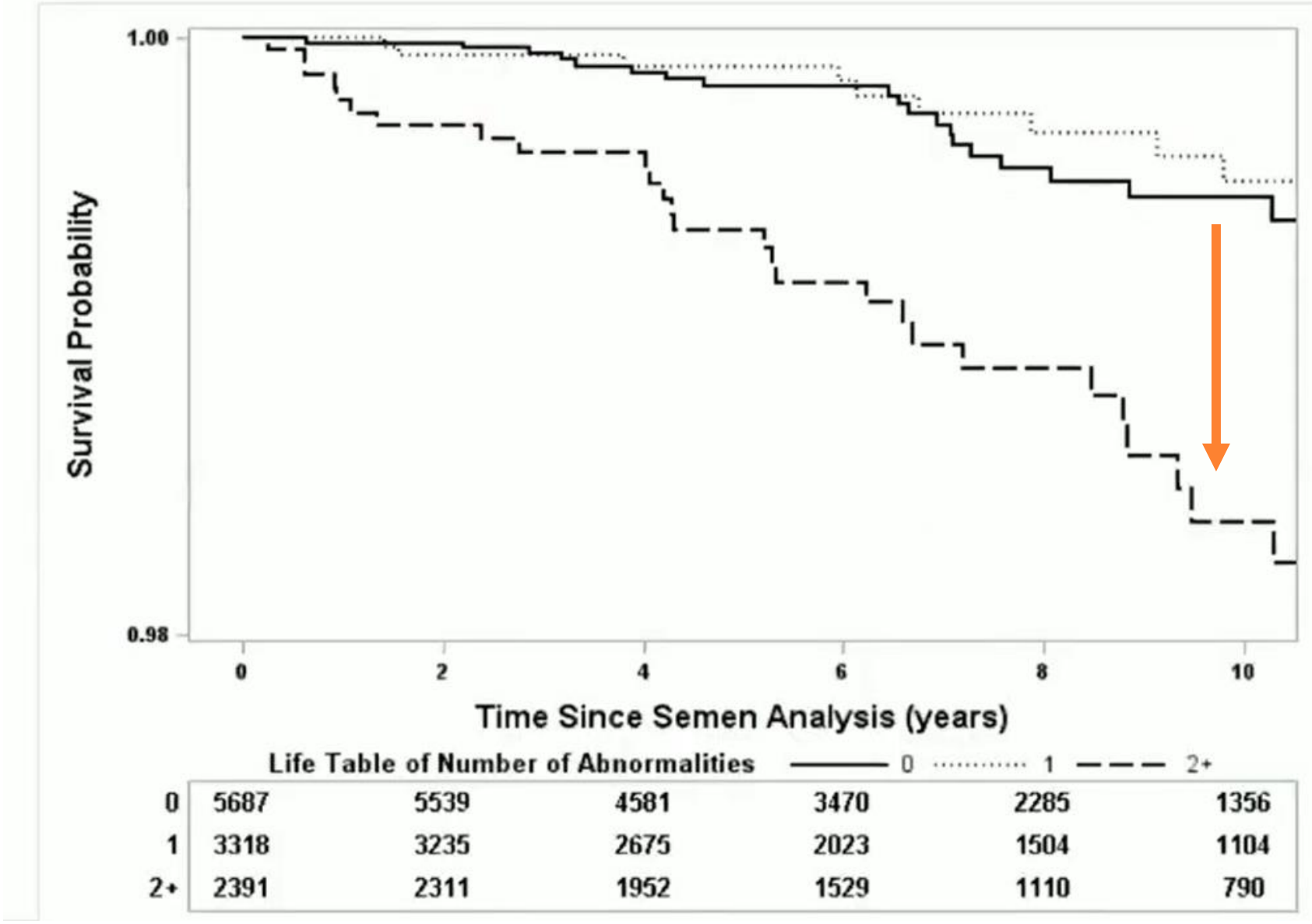
Tina Kold Jensen, Rune Jacobsen, Kaare Christensen, Niels Christian Nielsen, and Erik Bostofte

FERTILITY

Comparison of semen parameters to mortality



FERTILITY

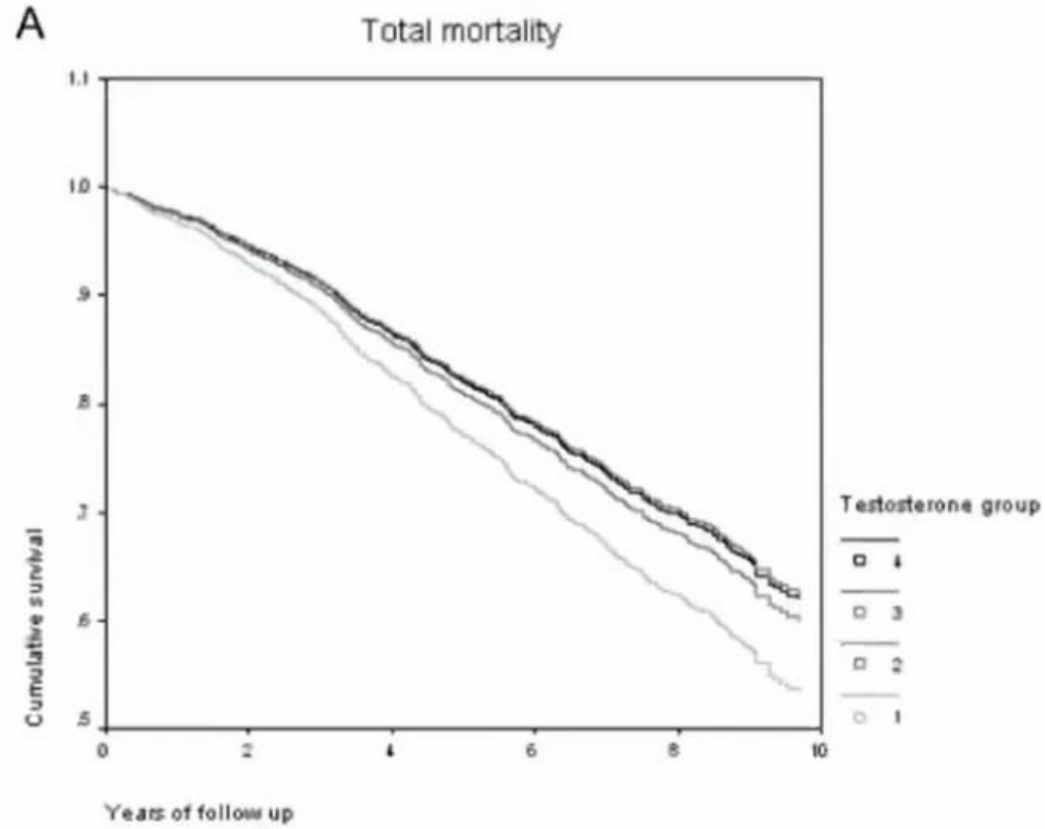


Life Table of Number of Abnormalities — 0 ····· 1 — — — 2+

0	5687	5539	4581	3470	2285	1356
1	3318	3235	2675	2023	1504	1104
2+	2391	2311	1952	1529	1110	790

Hormonal Factors

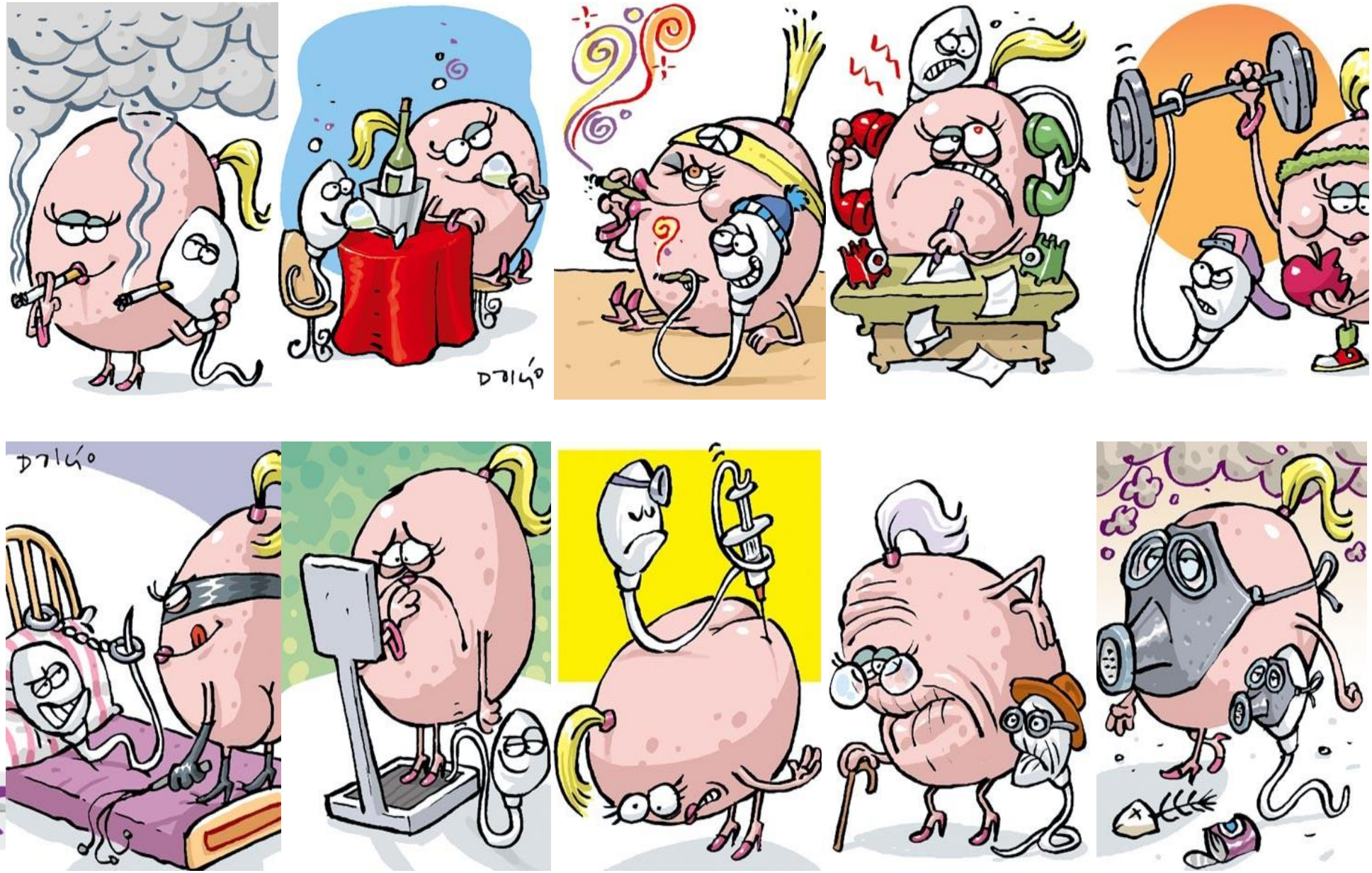
Low testosterone and Overall Mortality



Khaw et al, 2007

FERTILITY

Dez mandamentos para preservar sua Fertilidade



FERTILITY
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- EVENTOS
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http://fertility.com.br/aulas -ministradas/

FERTILITY

Obrigado!

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