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

Edson Borges Jr.

Fertility Medical Group
FERTGROUP
Instituto Sapientiae

FERTILITY

Associação Instituto Sapientiae

FERTGROUP
MEDICINA REPRODUTIVA

Declaração:

Sem conflito de interesse para divulgar relacionado ao assunto desta palestra

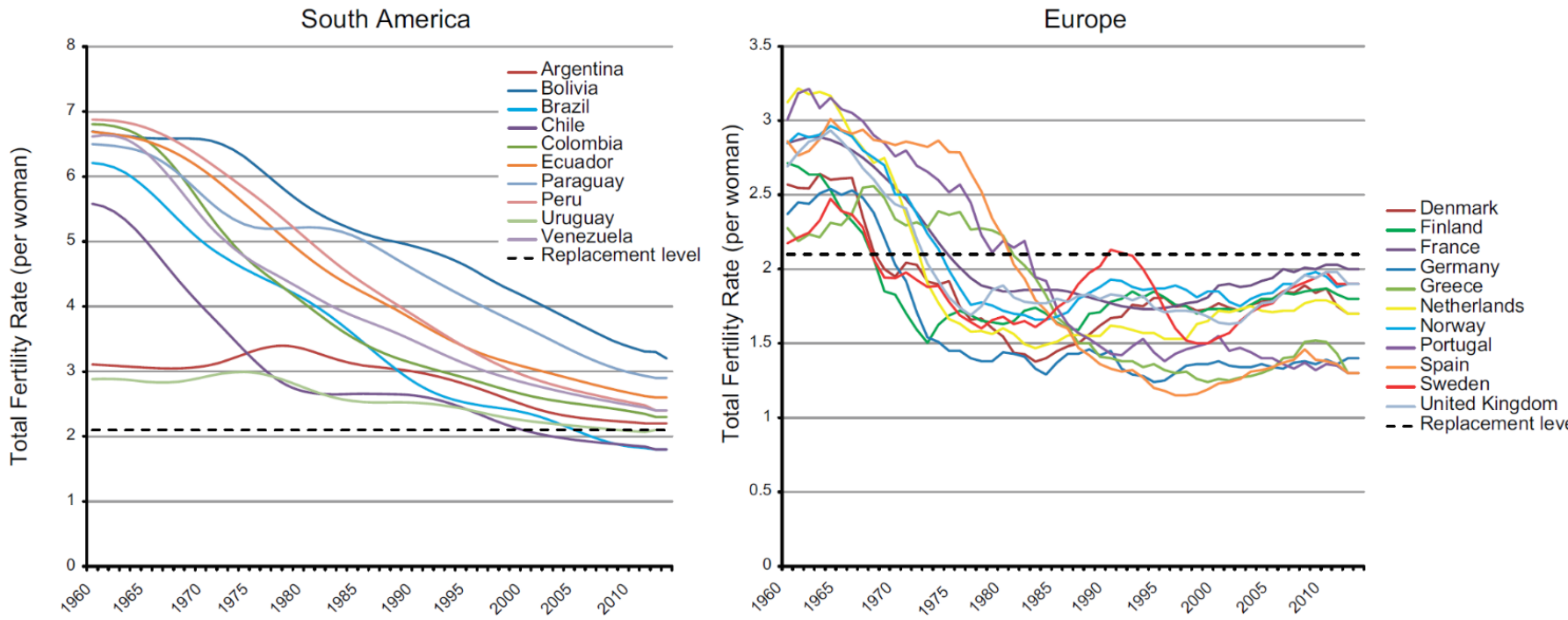
Resolução do Conselho Federal de Medicina
nº 1.595/2.000

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

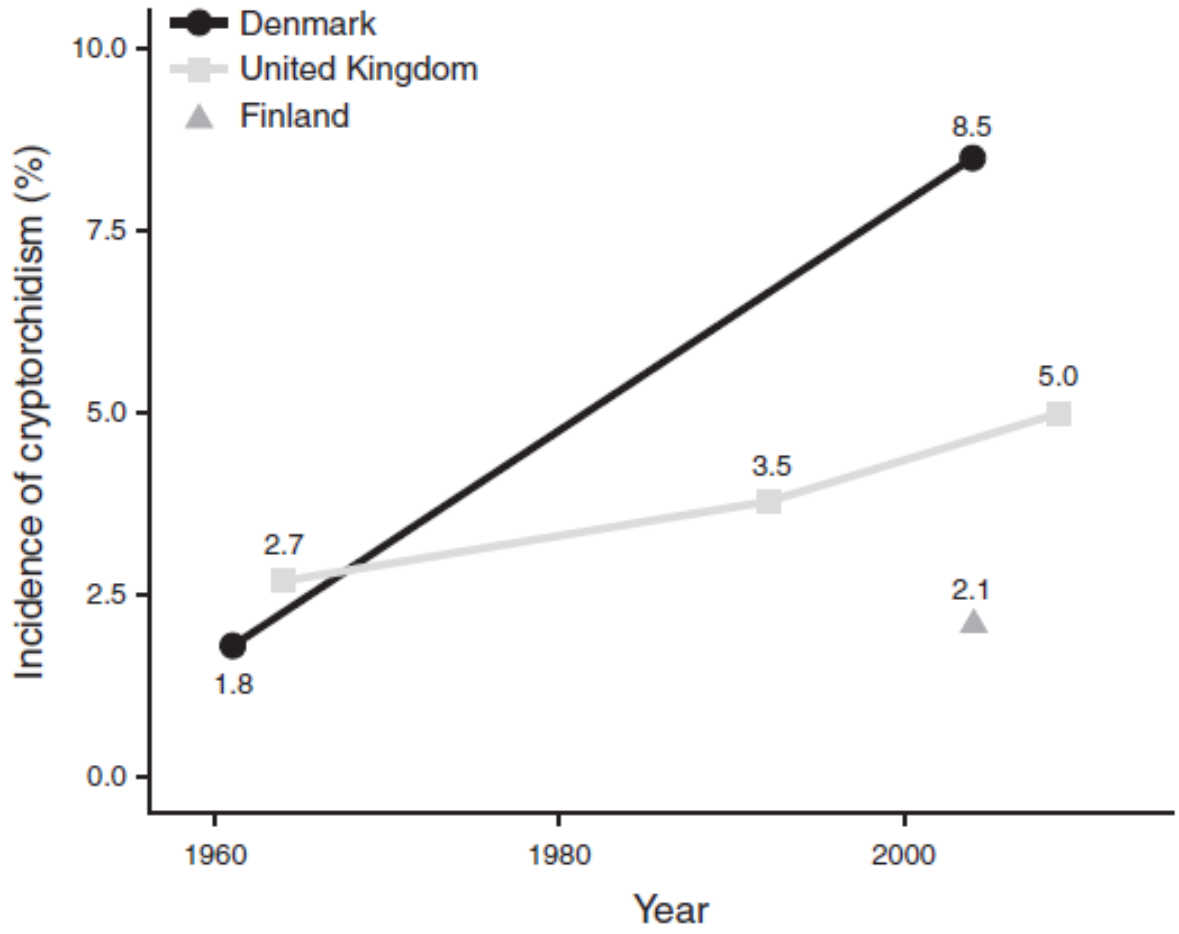


FIGURE 7. Incidence of cryptorchidism at birth on the basis of prospective clinical studies from the 1950s to the 2000s in Denmark, Finland, and United Kingdom. The data points are marked on the year of the publication of the study which represents the preceding incidence rate (3, 47, 61, 184, 377).

FERTIL

Idade da Puberdade

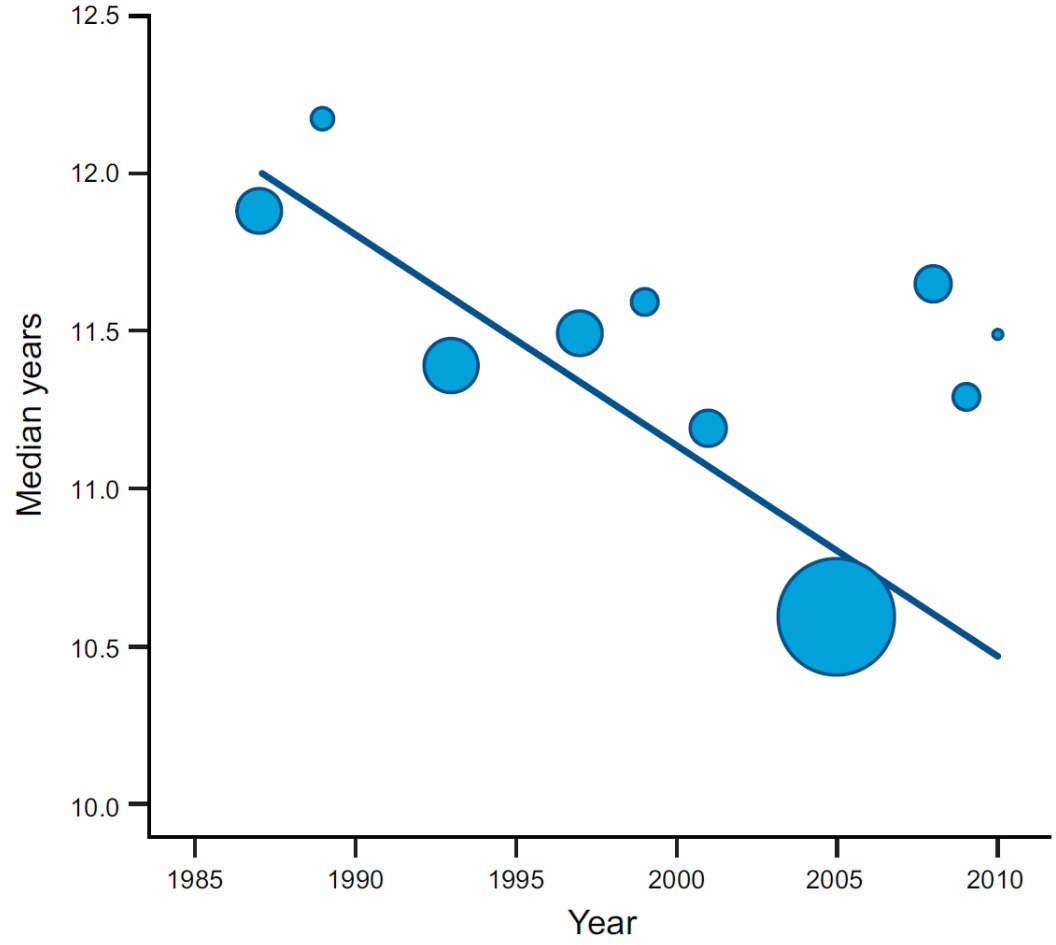


FIGURE 8. Recent changes in male pubertal timing. Testicular volume was >3 ml. [From Mouritsen et al. (293).]

Incidência de Câncer de Testículo

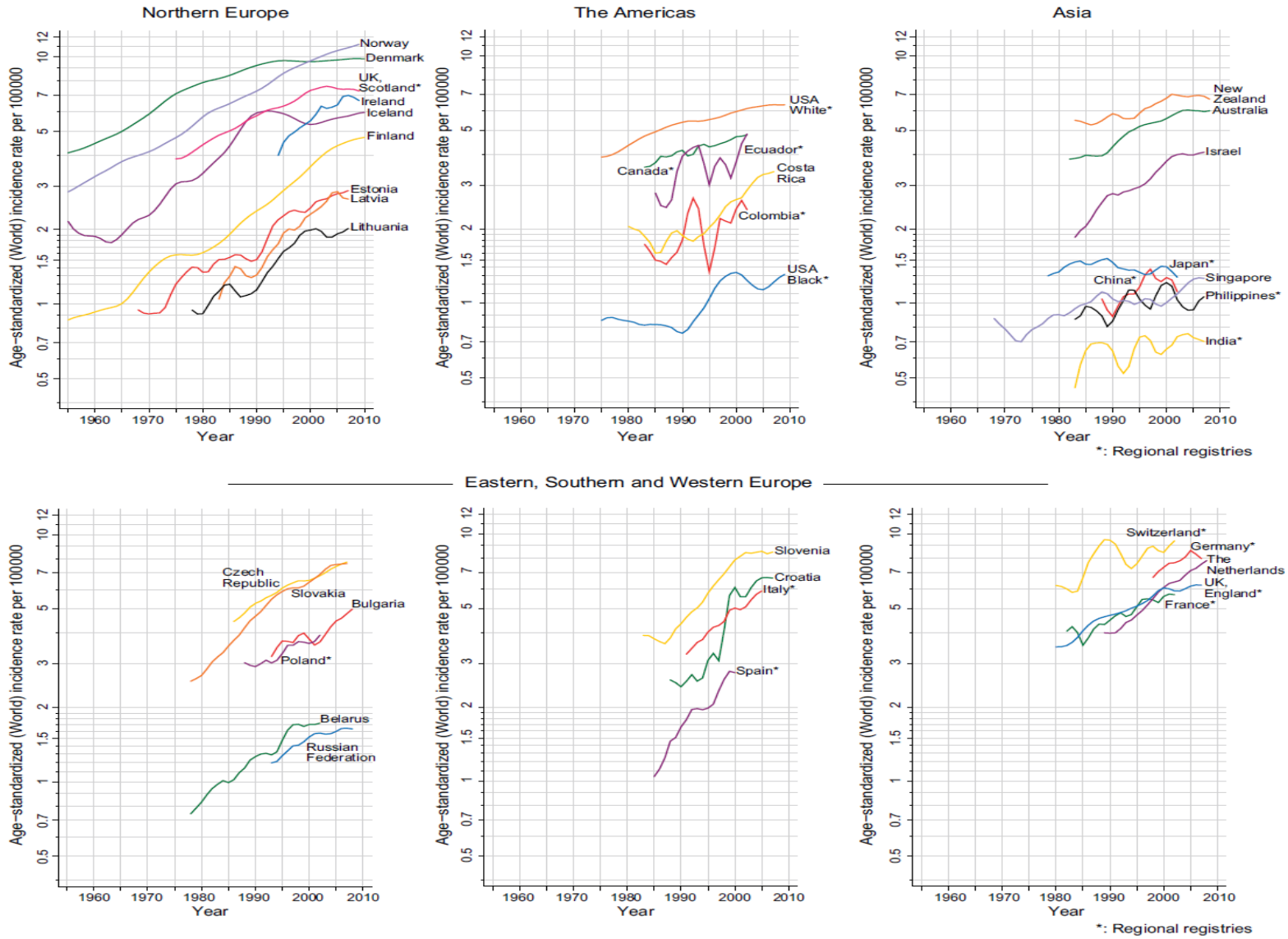


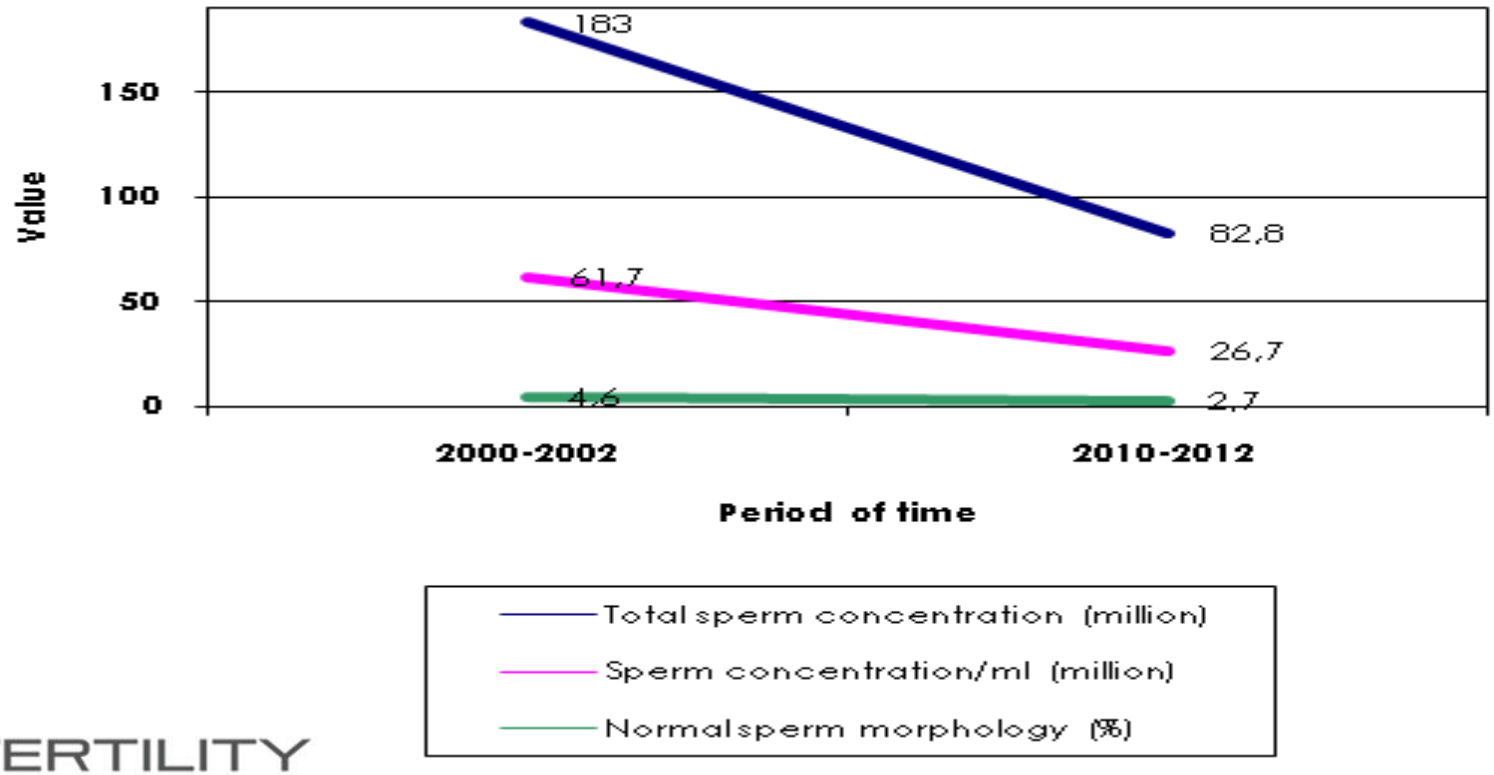
FIGURE 4. Trends in testicular cancer; age-standardized (world) incidence (regional or national), all ages. [Modified from Znaor et al. (481). Courtesy of Dr. Arinana Znaor and statistician Mathieu Laversanne, M.Sc., WHO, International Agency for Research in Cancer (IARC), Lyon, France.]

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

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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

HET

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]

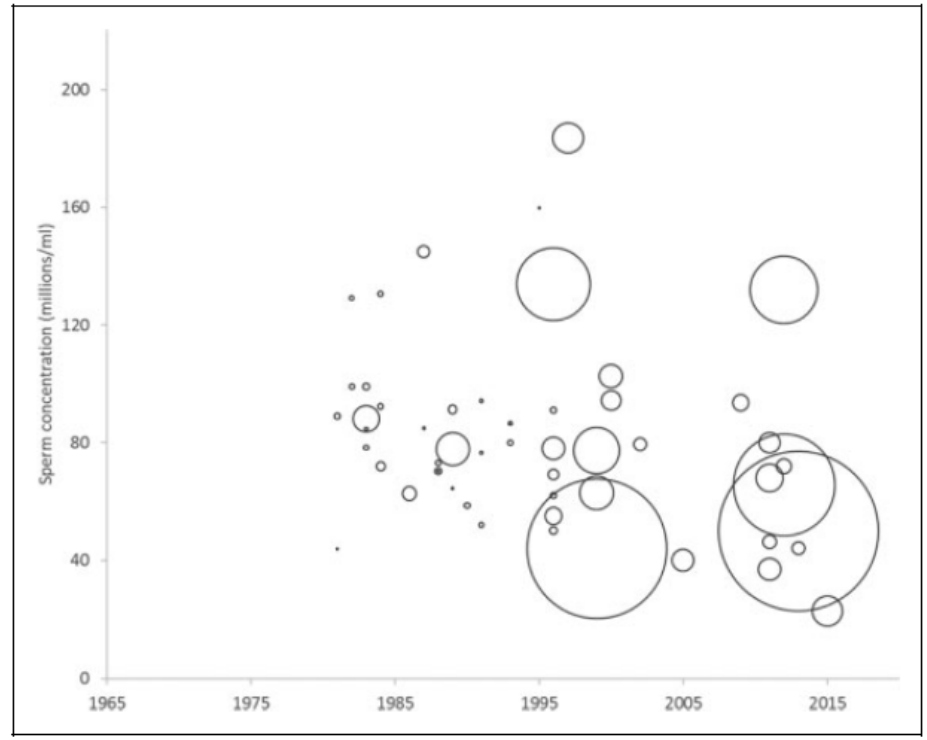


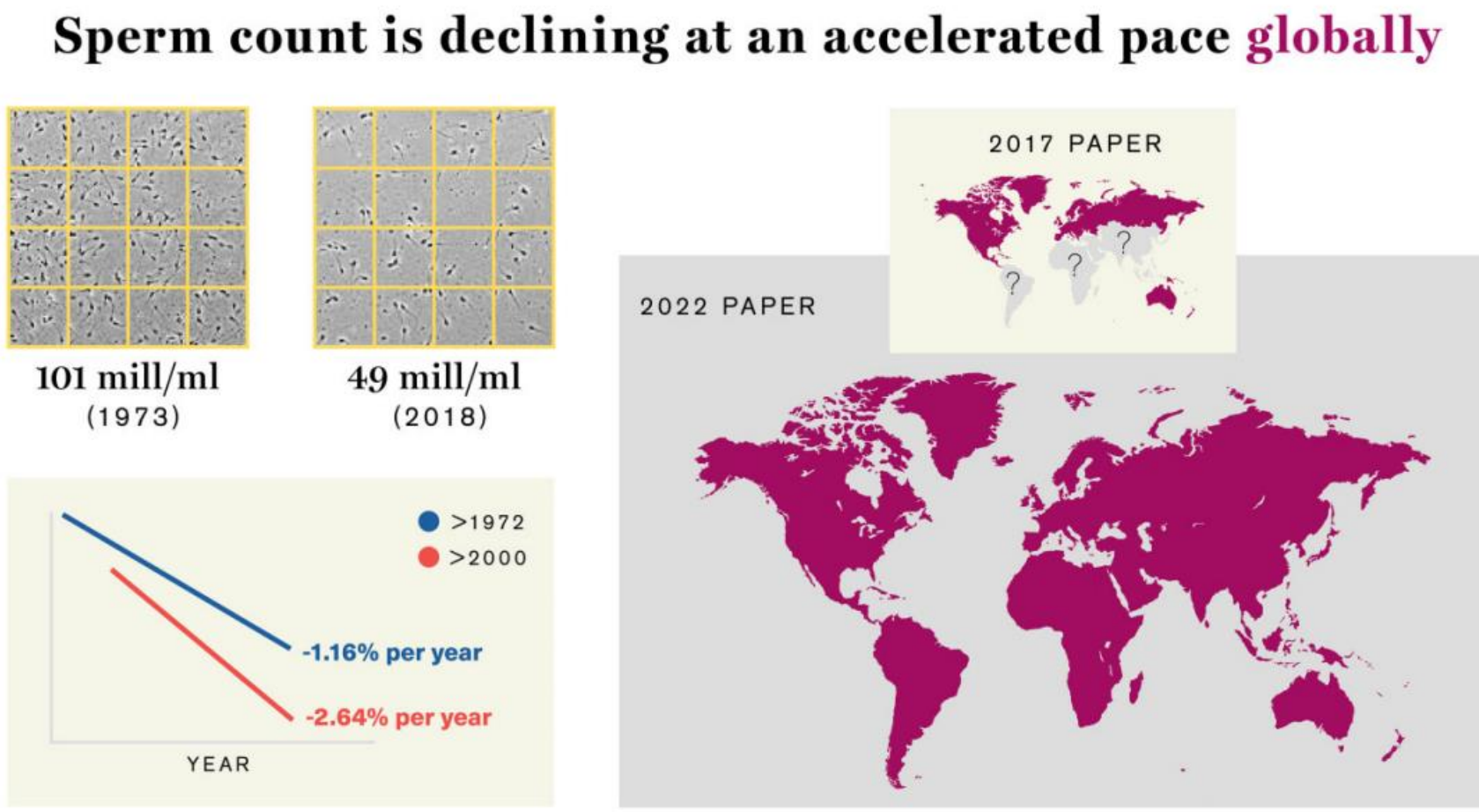
Figure 1. Temporal decline in sperm concentration ($\times 10^6$/ml) from 1965 to 2015, bubble size corresponds to the number of men in the study.

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

GRAPHICAL ABSTRACT



Sperm count is declining at an accelerated pace globally.

FERTILITY

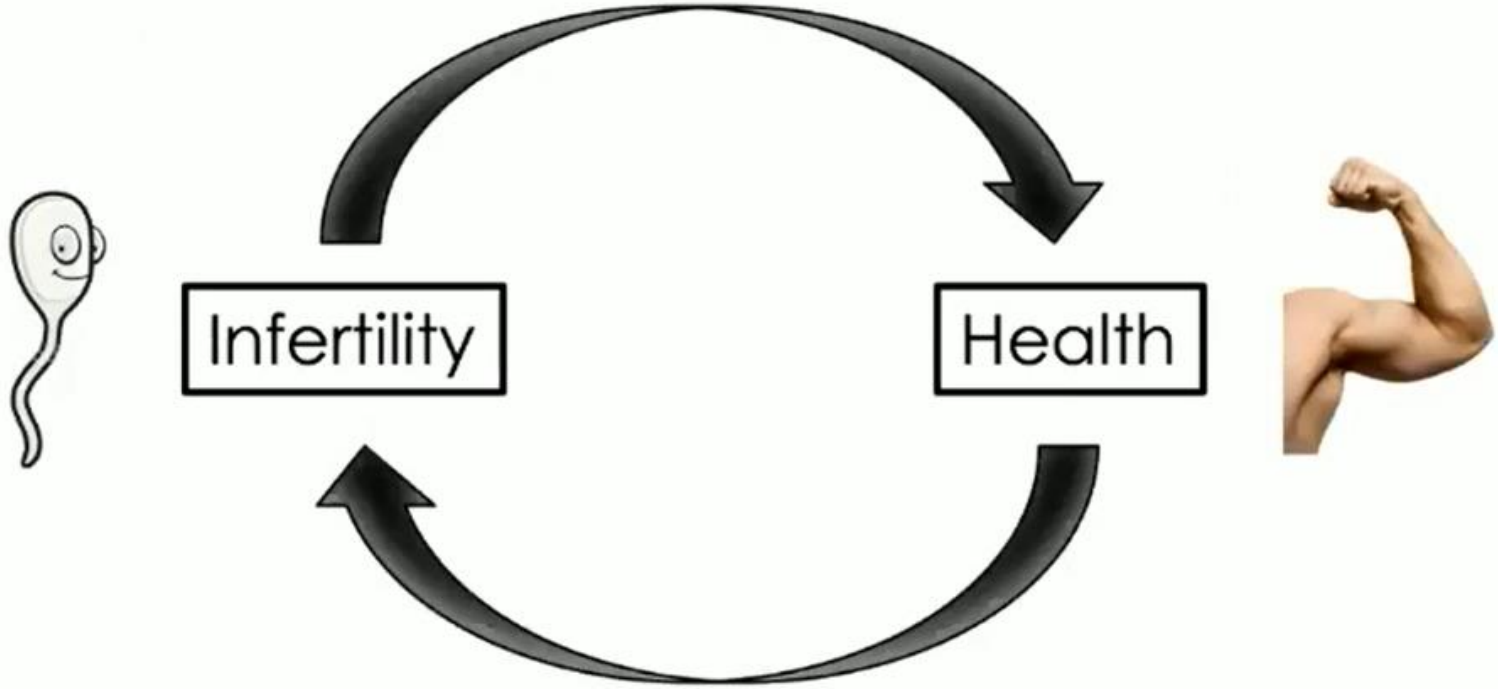
Human Reproduction Update, Vol.29, No.2, pp. 157–176, 2023
Advance Access Publication on November 15, 2022 https://doi.org/10.1093/humupd/dmac035

O sexto sinal vital:

O que o espermatozoide está tentando nos dizer?

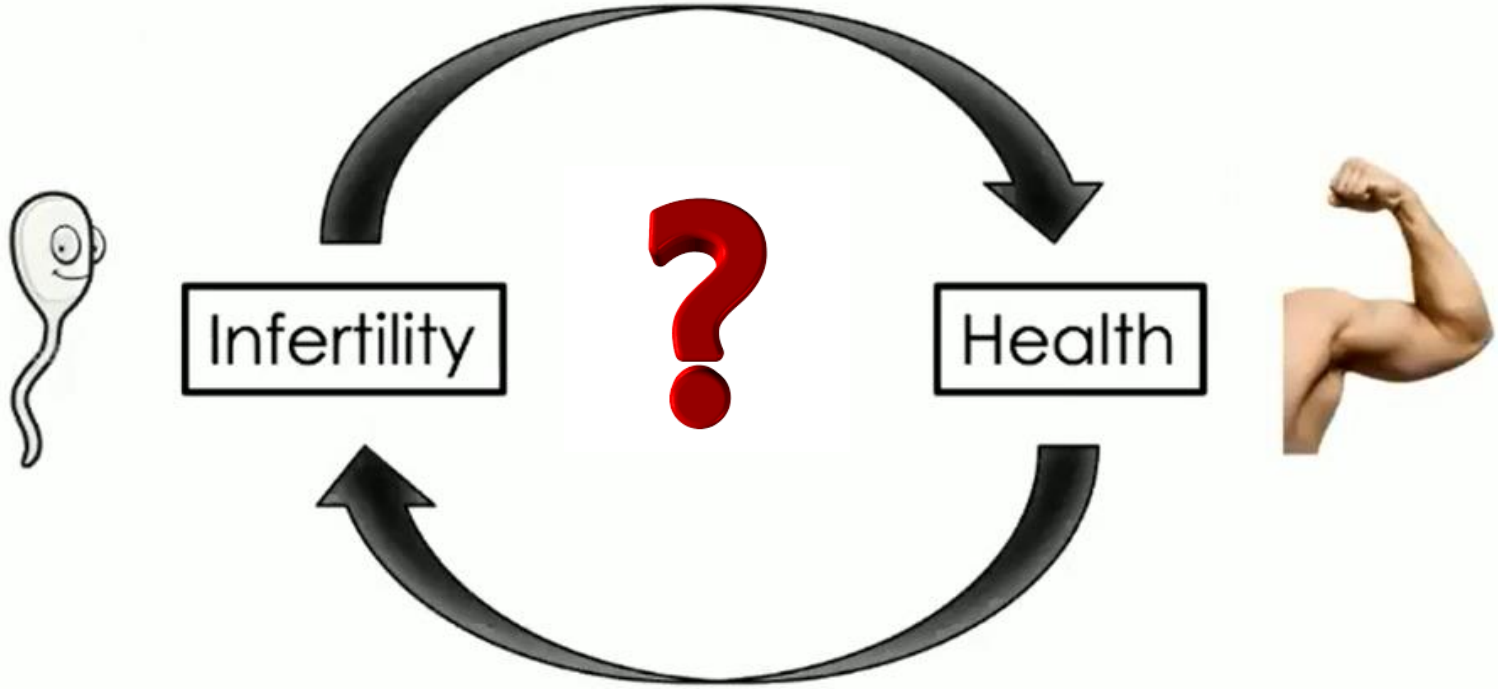
FERTILITY

Understanding the Relationship



FERTILITY

Understanding the Relationship



FERTILITY

Infertilidade e saúde futura

FERTILITY

Implicações biológicas

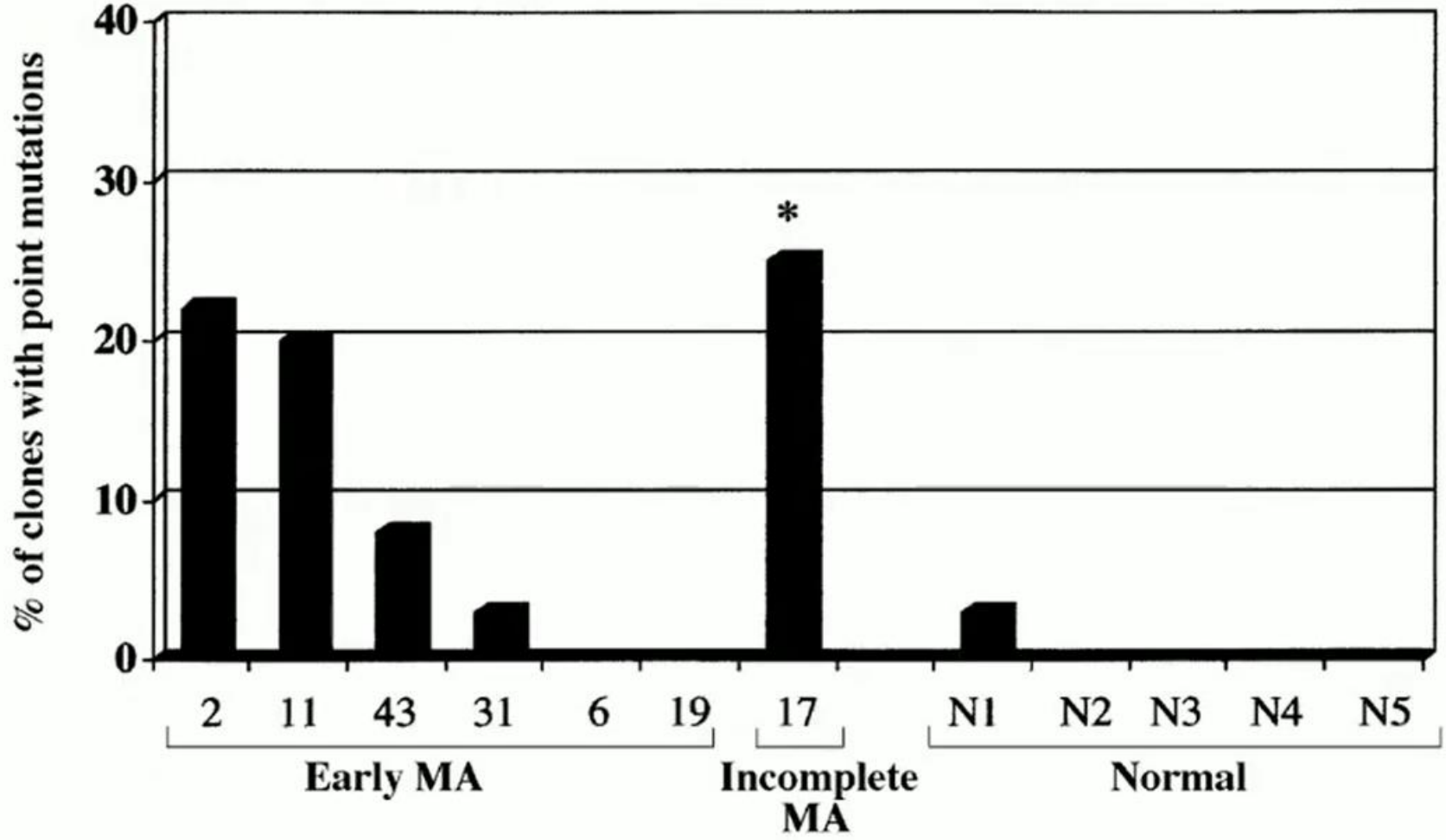
- Genéticos
- Hormonais
- Intraútero
- Social
- Estilo de vida/saúde

Implicações biológicas

- **Genéticos**
- Hormonais
- Intraútero
- Social
- Estilo de vida/saúde

FERTILITY

The percentage of clones with point mutations in DNA cloned from the D19S49 marker of men with early MA (meiotic arrest), incomplete MA, or normal spermatogenesis



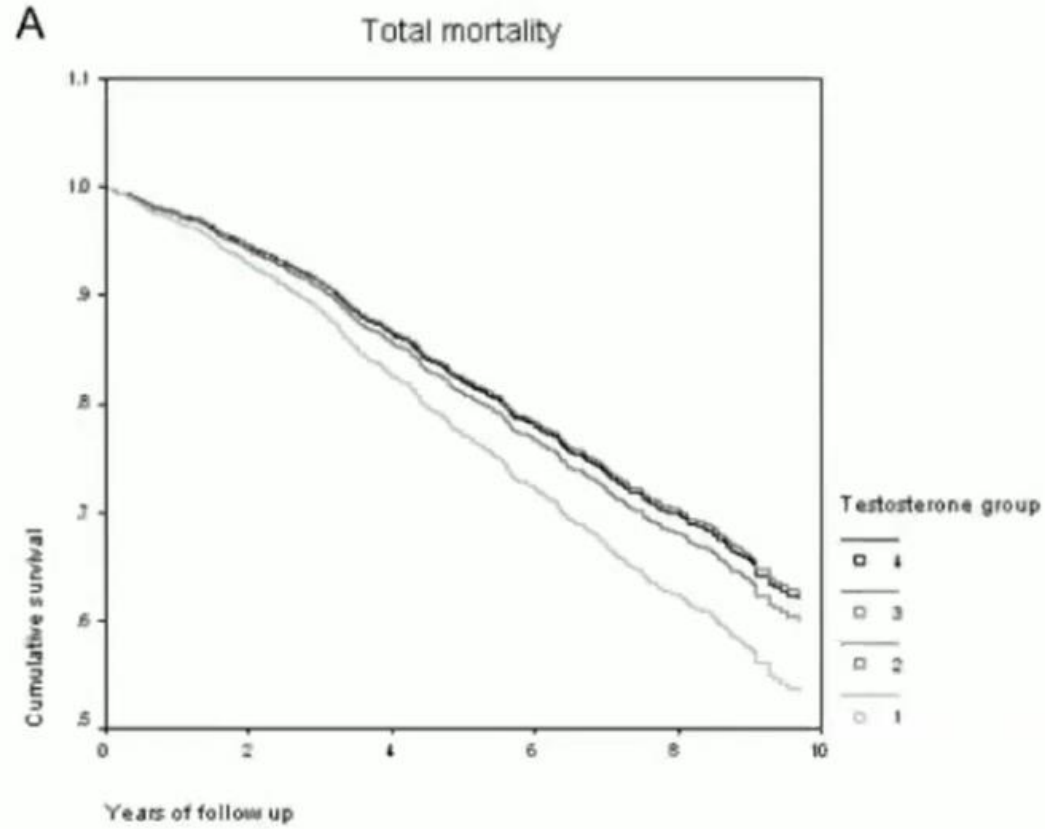
Nudell D et al. Hum. Reprod. 2000;15:1289-1294

Implicações biológicas

- Genéticos
- **Hormonais**
- Intraútero
- Social
- Estilo de vida/saúde

Hormonal Factors

Low testosterone and Overall Mortality



Khaw et al, 2007

FERTILITY

Implicações biológicas

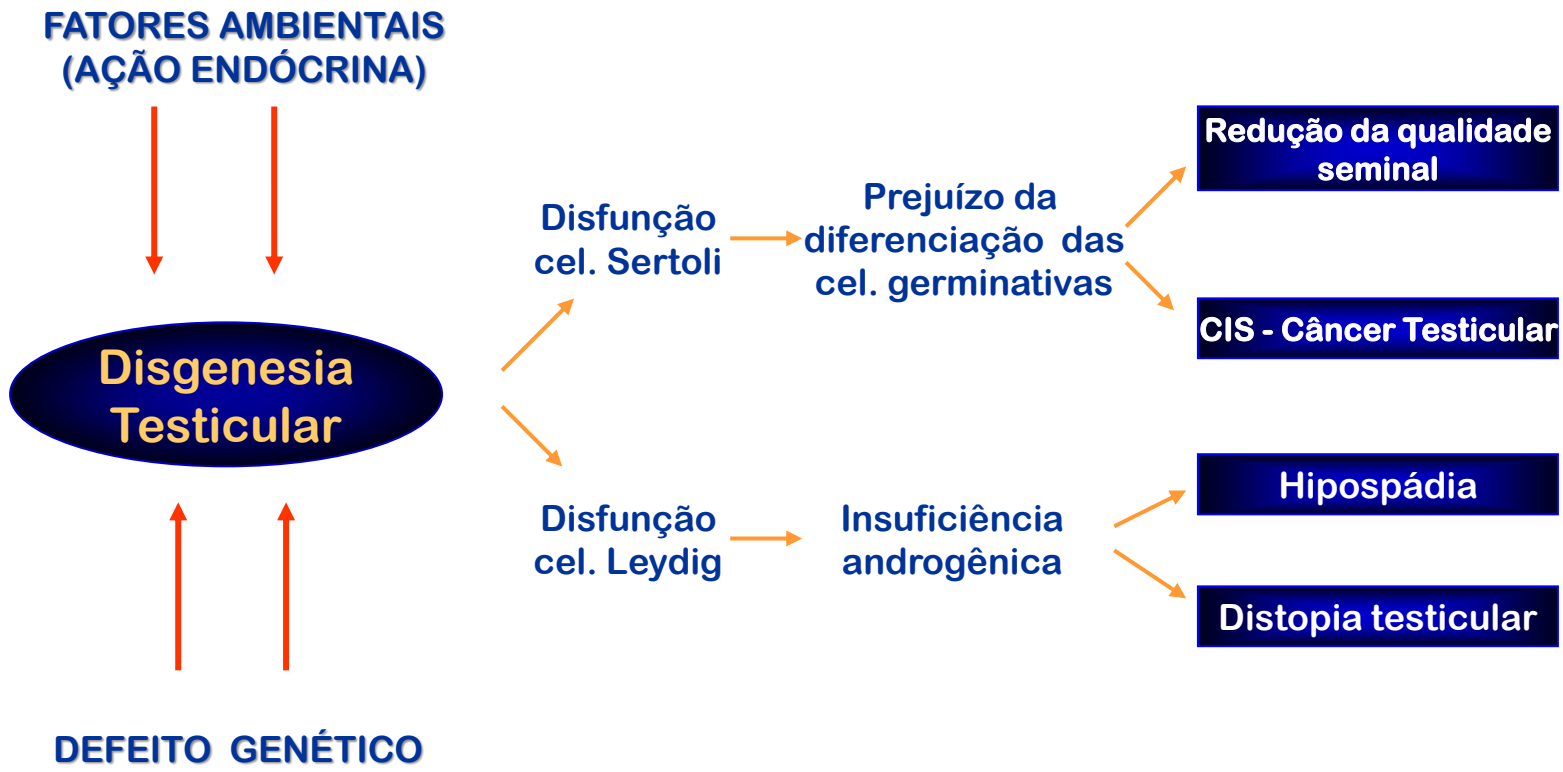
- Genéticos
- Hormonais
- **Intraútero**
- Social
- Estilo de vida/saúde

FERTILITY


Environment Special:
The oceans—why 70% of our planet is in danger
The Facebook Movie:
The secret history of social networking
TIME
How the first nine months shape the rest of your life
The new science of fetal origins
BY ANNIE MURPHY PAUL

FERTILITY

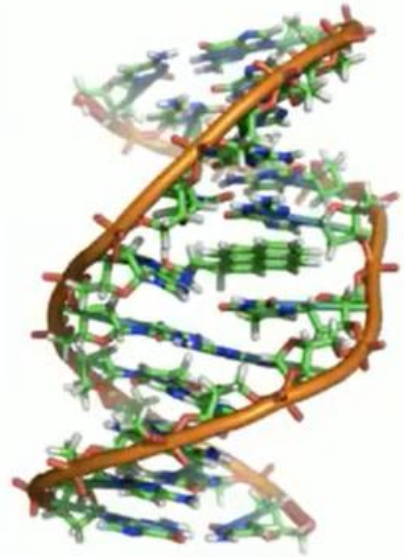
Lesão do Sistema Reprodutor Masculino



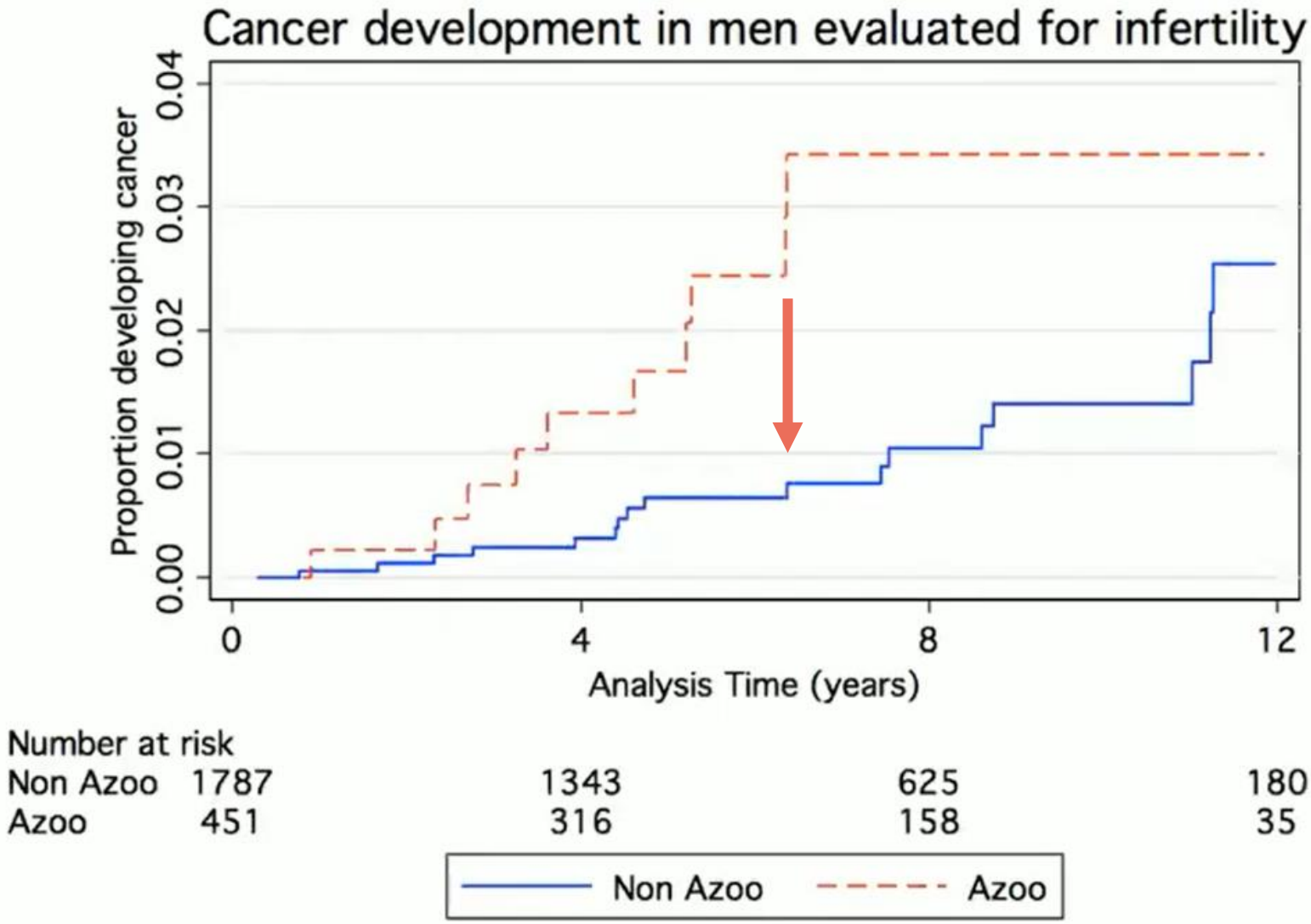
Skakkebaek NE. Hum Rep 16(5): 972-8, 2001

FERTILITY

Infertilidade risco de câncer



FERTILITY



Eisenberg et al, 2013

Infertility and Testis Cancer

- Examined >30,000 men who had a semen analysis in Copenhagen from 1963-1995
- Linked to Danish Cancer Registry

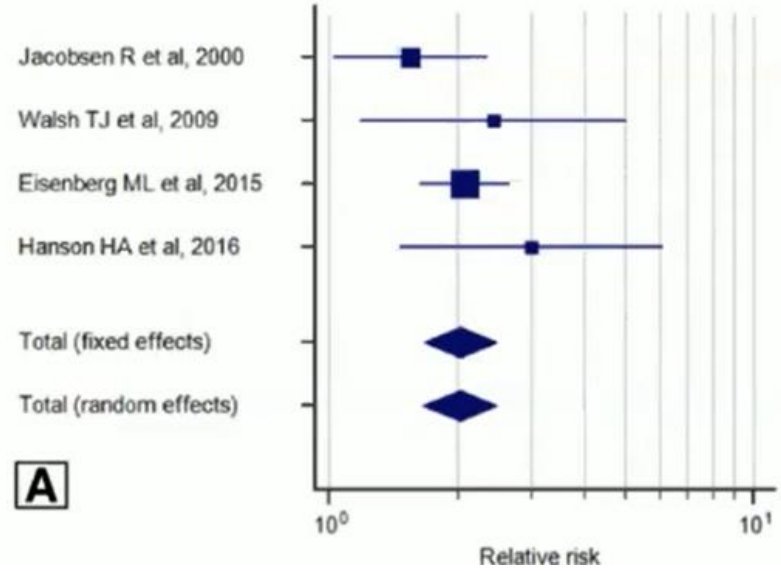
Jacobsen et al, BMJ, 2000

Infertility and Testis Cancer

Semen parameter		n	Observed cases	Expected cases	SIR
Concentration	0-20	10,509	33	14.4	**2.3 (1.6,3.2)**
	>20	18,668	42	36.9	1.1 (0.8, 1.5)
Motility	Poor	1,312	7	2.8	**2.5 (1.0, 5.2)**
	Good	19,362	44	28	1.6 (1.1, 2.1)
Morphology (% abnormal)	>75	528	4	1.4	**3.0 (0.8, 7.6)**
	0-75	27,618	64	47.8	1.3 (1.0, 1.7)

Infertility and Testis Cancer

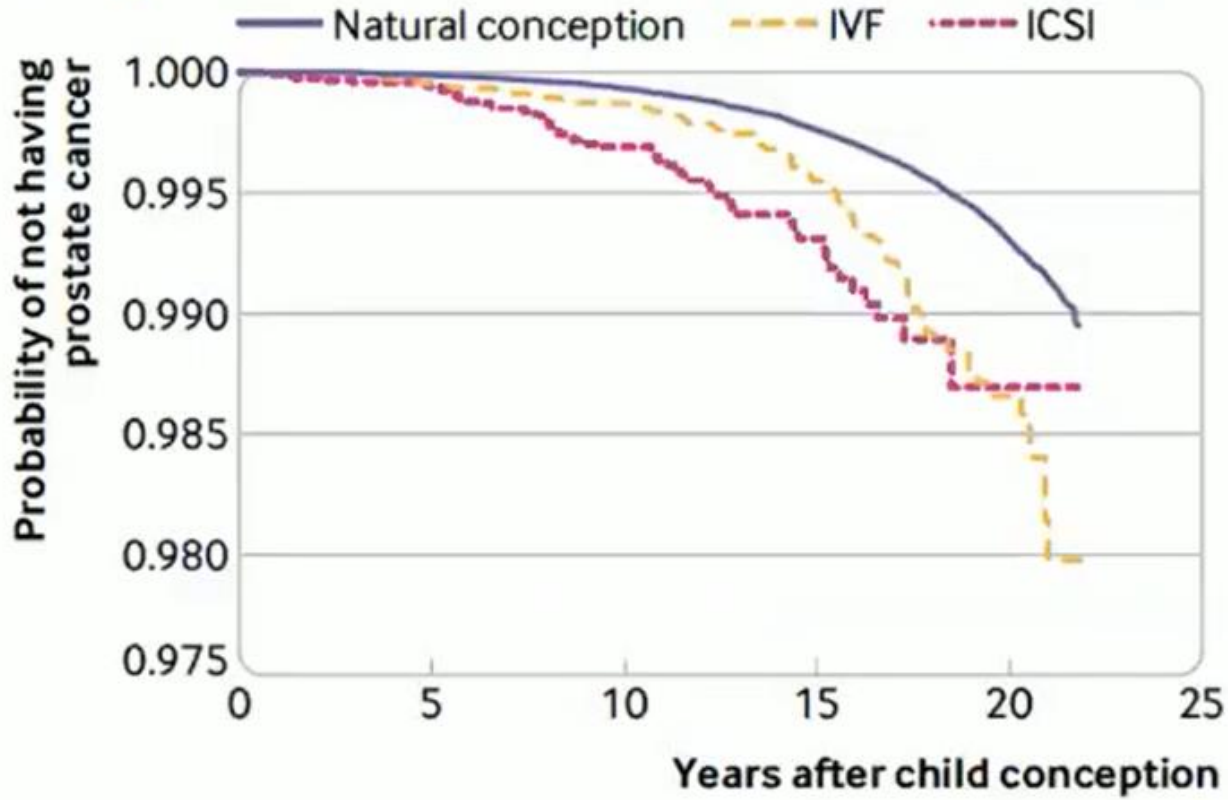
Author, Year,	Infertile	Controls	Relative risk	95% CI	p value
Jacobsen R et al[37], 2000	46/13184	42/18667	1.551	1.021 to 2.355	
Walsh TJ et al[38], 2009	13/4549	17/14556	2.447	1.189 to 5.034	
Eisenberg ML et al[19], 2015	85/123467	251/760829	2.087	1.632 to 2.669	
Hanson HA et al[39], 2016	30/20432	10/20432	3.000	1.467 to 6.135	
Total (fixed effects)	174/161632	320/814484	2.033	1.671 to 2.474	<0.001
Total (random effects)	174/161632	320/814484	2.033	1.665 to 2.481	<0.001



Del Giudice et al, Fert Ster, 2020

FERTILITY

Infertility and Prostate Cancer



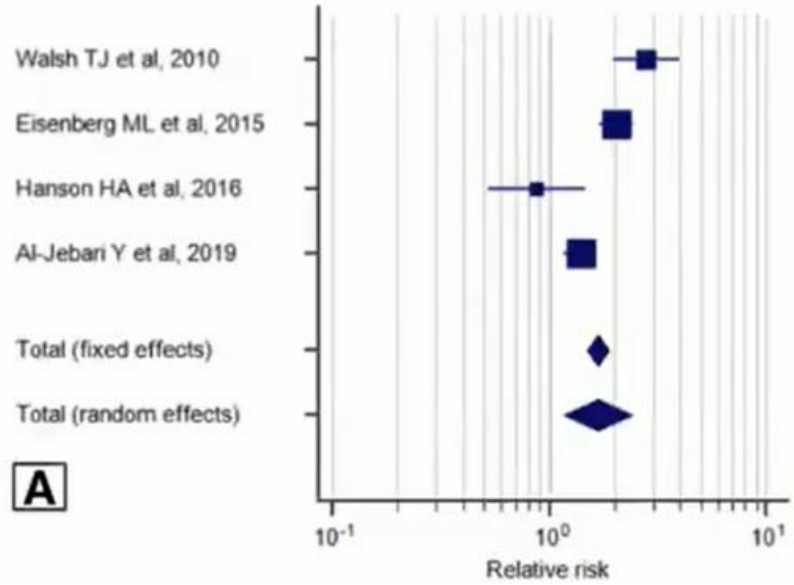
Natural conception	1 145 962	940 084	692 333	454 698	181 249
IVF	20 617	15 274	9504	5007	1535
ICSI	14 873	10 509	6099	2593	184

FERTILITY

Al-Jebari et al, BMJ, 2019

Infertility and Prostate Cancer

Author, year	Infertile	Controls	Relative risk	95% CI	p value
Walsh TJ et al[29], 2010	56/4549	64/14556	2.800	1.959 to 4.002	
Eisenberg ML et al[19], 2015	154/123467	464/760829	2.045	1.705 to 2.454	
Hanson HA et al,[39] 2016	27/20432	31/20432	0.871	0.520 to 1.459	
Al-Jebari Y et al,[40] 2019	140/35499	3244/1145990	1.393	1.177 to 1.649	
Total (fixed effects)	377/183947	3803/1941807	1.681	1.501 to 1.882	<0.001
Total (random effects)	377/183947	3803/1941807	1.678	1.170 to 2.407	0.005



Del Giudice et al, Fert Ster, 2020

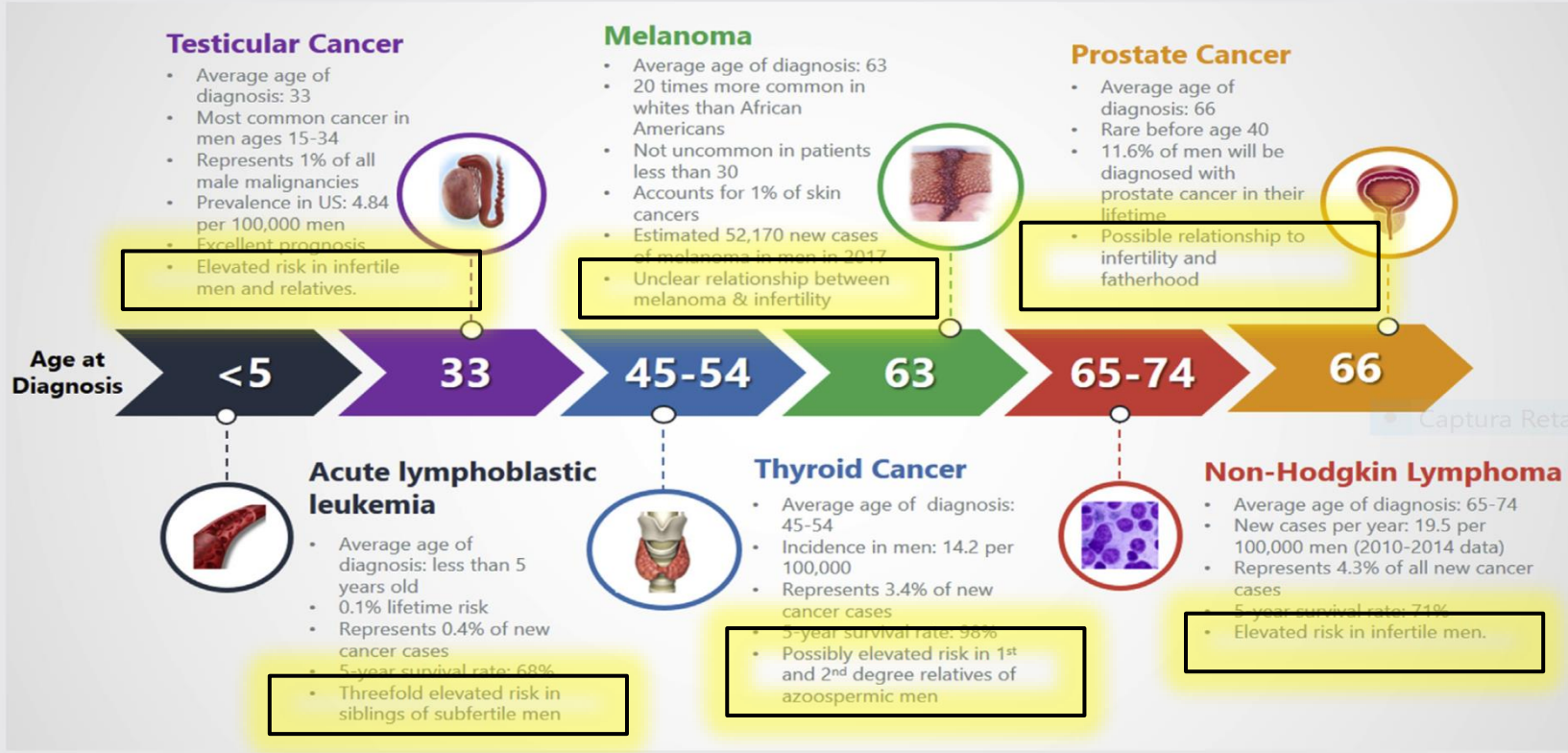
FERTILITY

Male infertility: a biomarker of individual and familial cancer risk

Brent M. Hanson, M.D.,[a] Michael L. Eisenberg, M.D.,[b] and James M. Hotaling, M.D., M.S., F.E.C.S.M.[c]

[a] Department of Obstetrics and Gynecology, University of Utah, Salt Lake City, Utah; [b] Male Reproductive Medicine and Surgery Program, Departments of Urology and Obstetrics and Gynecology, Stanford University, Stanford, California; and [c] Center for Reconstructive Urology and Men's Health, Department of Surgery–Urology, University of Utah, Salt Lake City, Utah

Fertility and Sterility® Vol. 109, No. 1, January 2018



Specific malignancies associated with infertile men and their family members by average age at diagnosis.

Hanson. Male infertility and cancer risk. Fertil Steril 2017.

Implicações biológicas

- Genéticos
- Hormonais
- Intraútero
- **Social**
- Estilo de vida/saúde

FERTILITY

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

Social Factors
Partners & Kids

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All Cause Mortality

Male characteristics	HR (95% CI)
Cohabiting custodial fathers	Reference
Lone custodial fathers	1.6 (1.4-1.9)

Weitoft et al, 2004

Social Factors
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Lone custodial fathers	1.6 (1.4-1.9)
Lone non custodial fathers	2.7 (2.5-2.8)

Weitoft et al, 2004

FERTILITY

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Cohabiting childless men	1.6 (1.5-1.7)

Weitoft et al, 2004

FERTILITY

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Cohabiting childless men	1.6 (1.5-1.7)
Lone childless	2.9 (2.8-3.0)

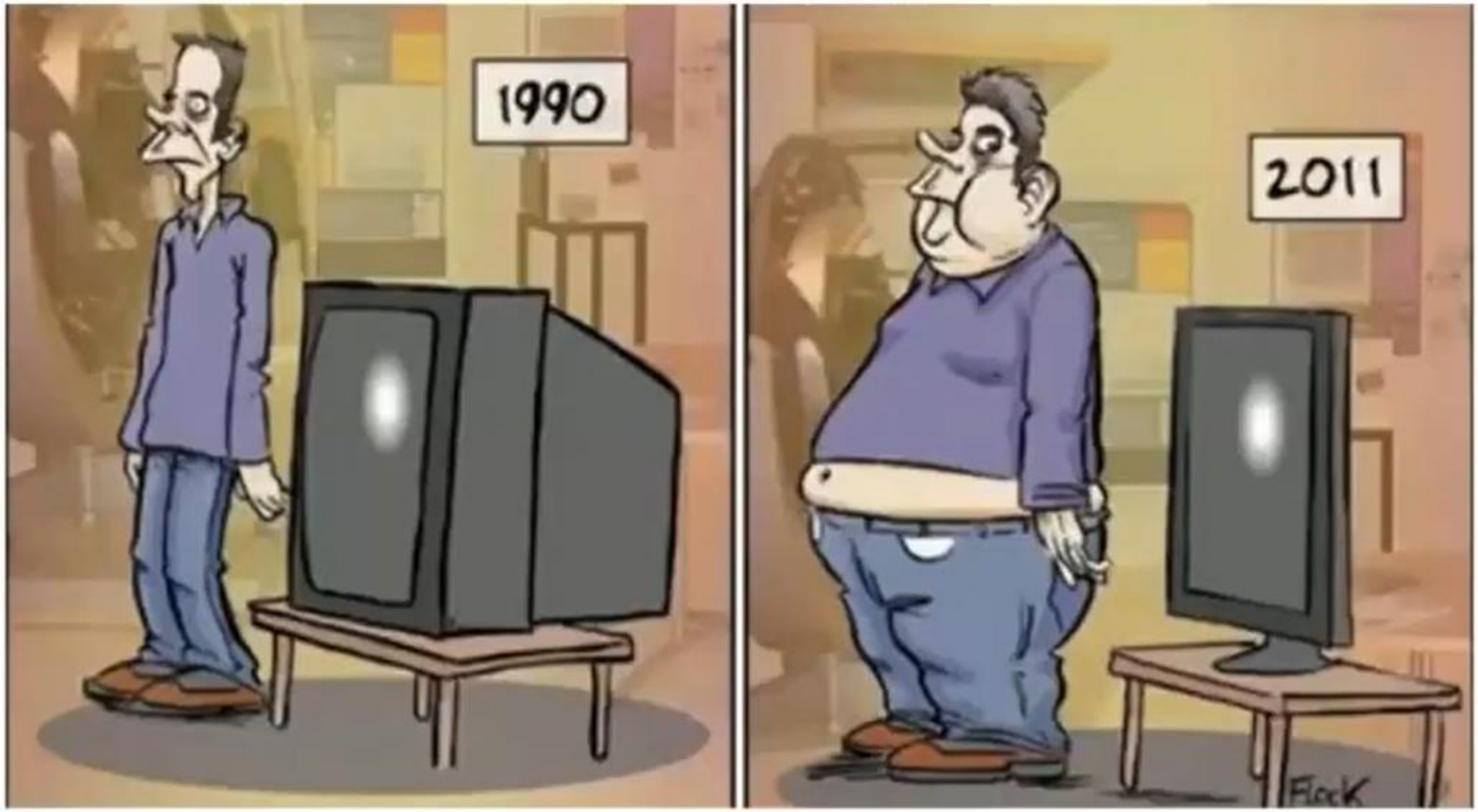
Weitoft et al, 2004

Implicações biológicas

- Genéticos
- Hormonais
- Intraútero
- Social
- **Estilo de vida/saúde**

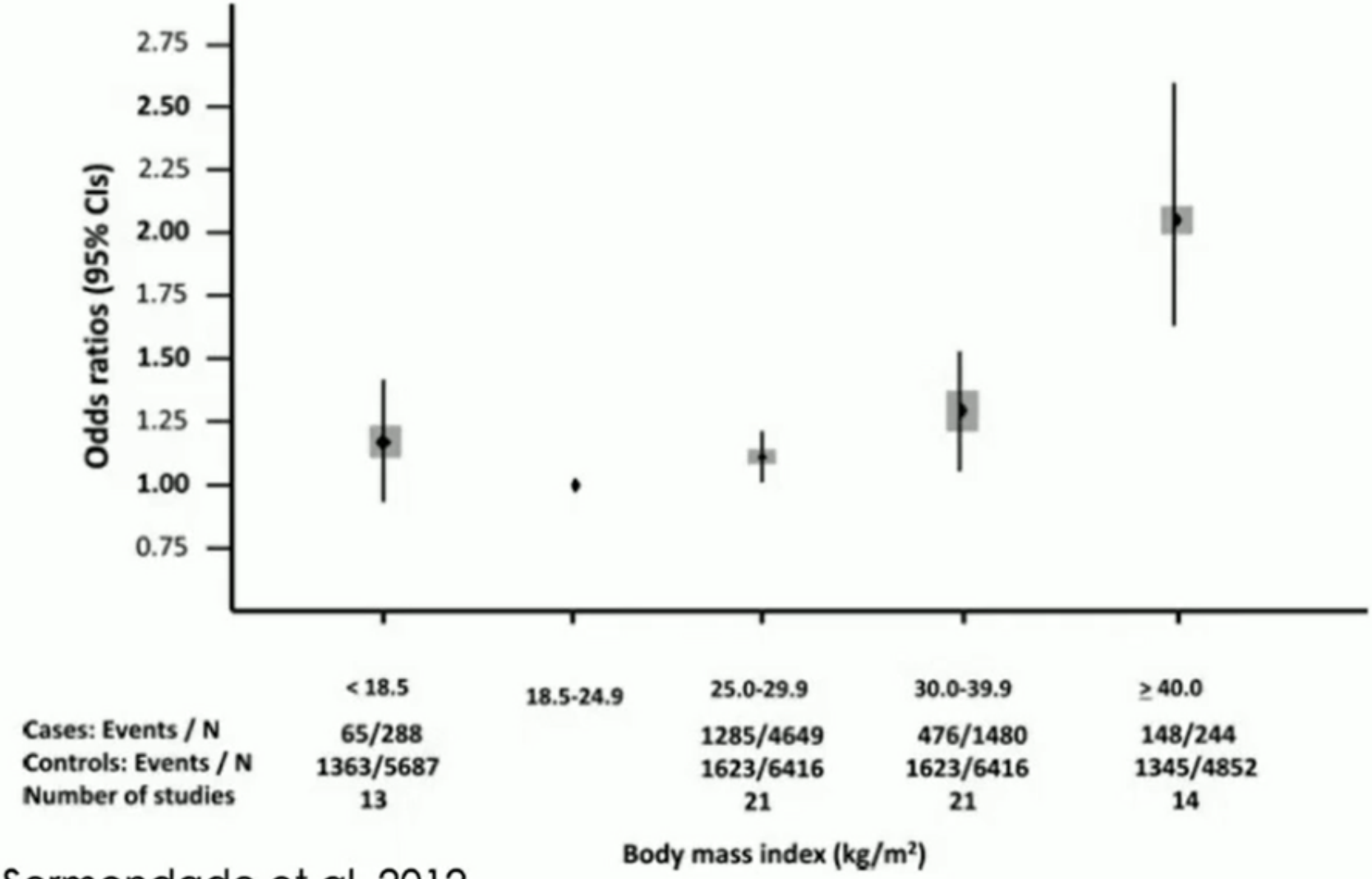
FERTILITY

Obesity



FERTILITY

BMI and Low Sperm Counts



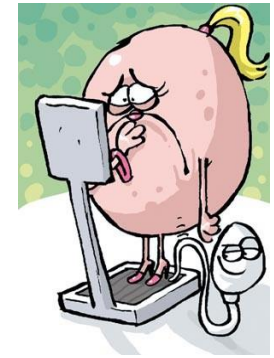
Sermondade et al, 2012

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

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

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

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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

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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

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)

Lifestyle factors	Cigarette smoking		Alcohol consumption		Occupation exposure		Physical activity		Medication use	
	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

Human Reproduction, Vol.38, No.4, pp. 529–536, 2023
Advance Access Publication on February 11, 2023 https://doi.org/10.1093/humrep/dead027

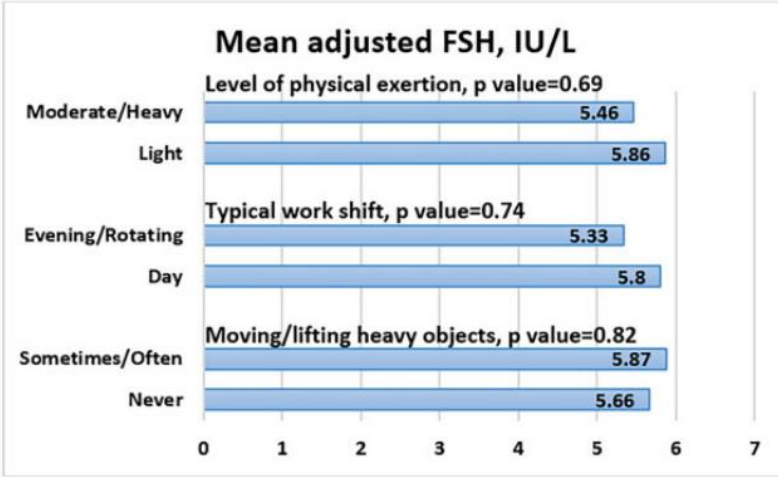
human reproduction ORIGINAL ARTICLE *Andrology*

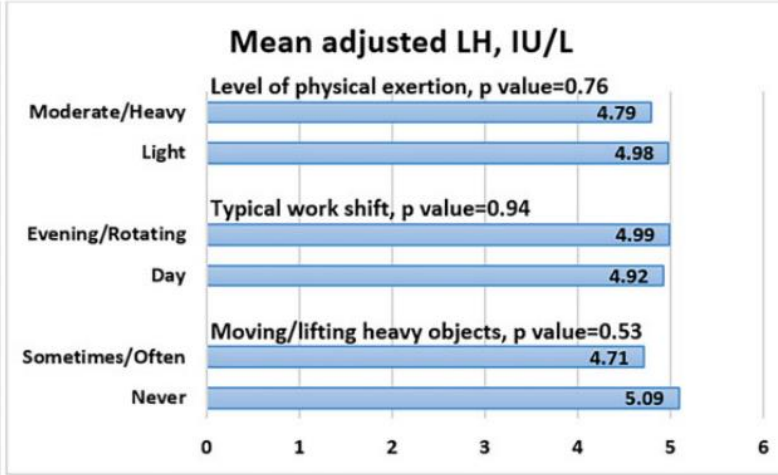
Occupational factors and markers of testicular function among men attending a fertility center

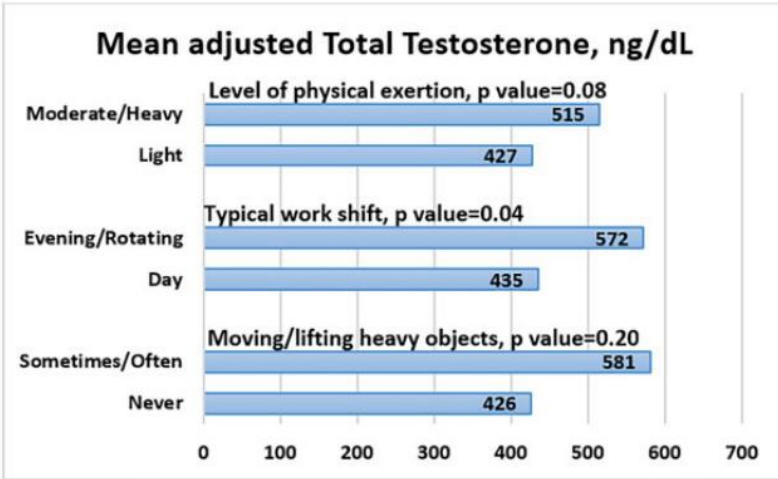
Lidia Mínguez-Alarcón [1,2,*], Paige L. Williams[3,4], Irene Souter[5], Jennifer B. Ford[1], Ramy Abou Ghayda[6], Russ Hauser[1,3,7], and Jorge E. Chavarro [2,3,8]; for the Earth Study Team

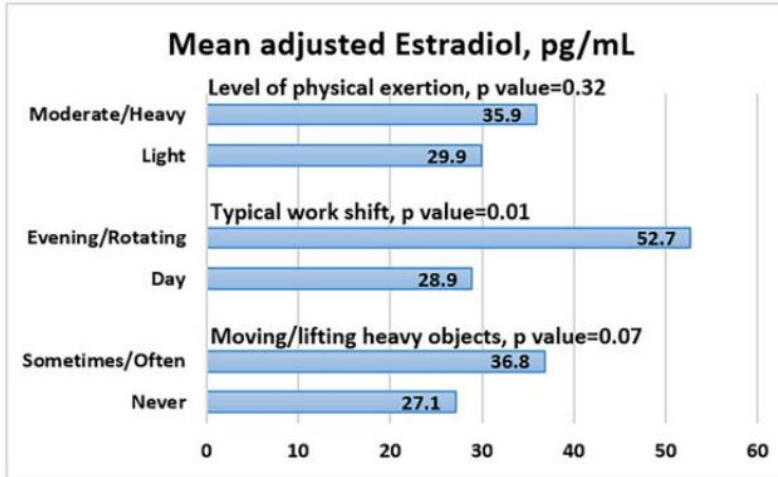
- Self-reported information on lifting/moving heavy objects, typical shift, and physical level of exertion at work was collected from a take-home questionnaire.
- Semen samples were analyzed following World Health Organization guidelines.
- Enzyme immunoassays were used to assess reproductive hormone concentrations.

FERTILITY









Human Reproduction, Vol.38, No.4, pp. 529–536, 2023

Use of laptop computers connected to internet through Wi-Fi decreases human sperm motility and increases sperm DNA fragmentation

Conrado Avendaño, M.S.,[a] Ariela Mata, M.S.,[a] César A. Sanchez Sarmiento, M.D., Ph.D.,[a] and Gustavo F. Doncel, M.D., Ph.D.[b]

[a] Nascentis Medicina Reproductiva, Córdoba, Argentina; and [b] CONRAD, Department of Obstetrics and Gynecology, Eastern Virginia Medical School, Norfolk, Virginia

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

- Donor sperm samples, mostly normozoospermic, exposed ex vivo during 4 hours to a wireless internet-connected laptop showed a significant decrease in progressive sperm motility and an increase in sperm DNA fragmentation.
- Keeping a laptop connected wirelessly to the internet on the lap near the testes may result in decreased male fertility.

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

- 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**.

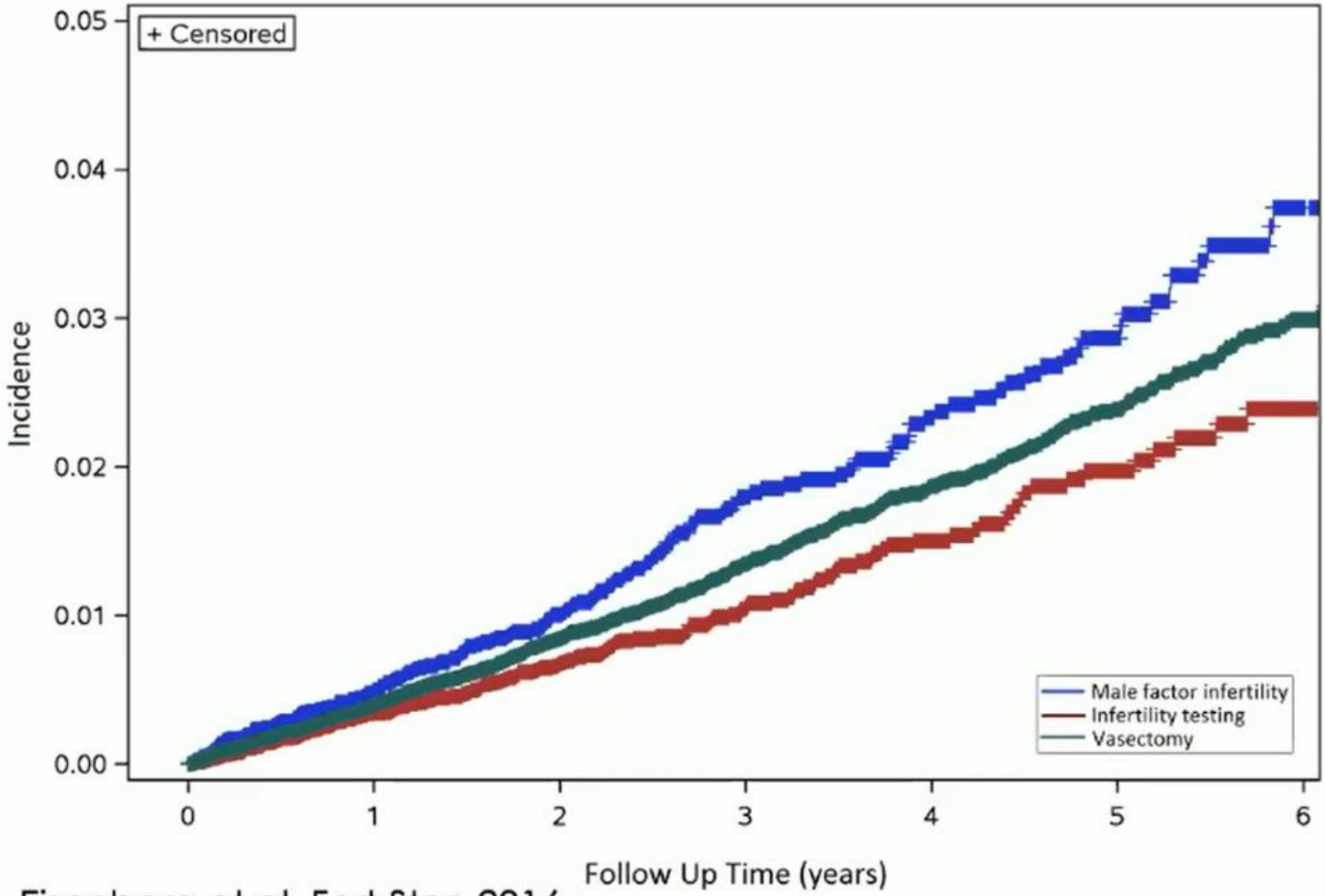
- It appears that heat that is emanated from the device contributes to this effect, as the device was noted to be warmer than when phones were used only with either 4G or 5G.

Other Health Conditions

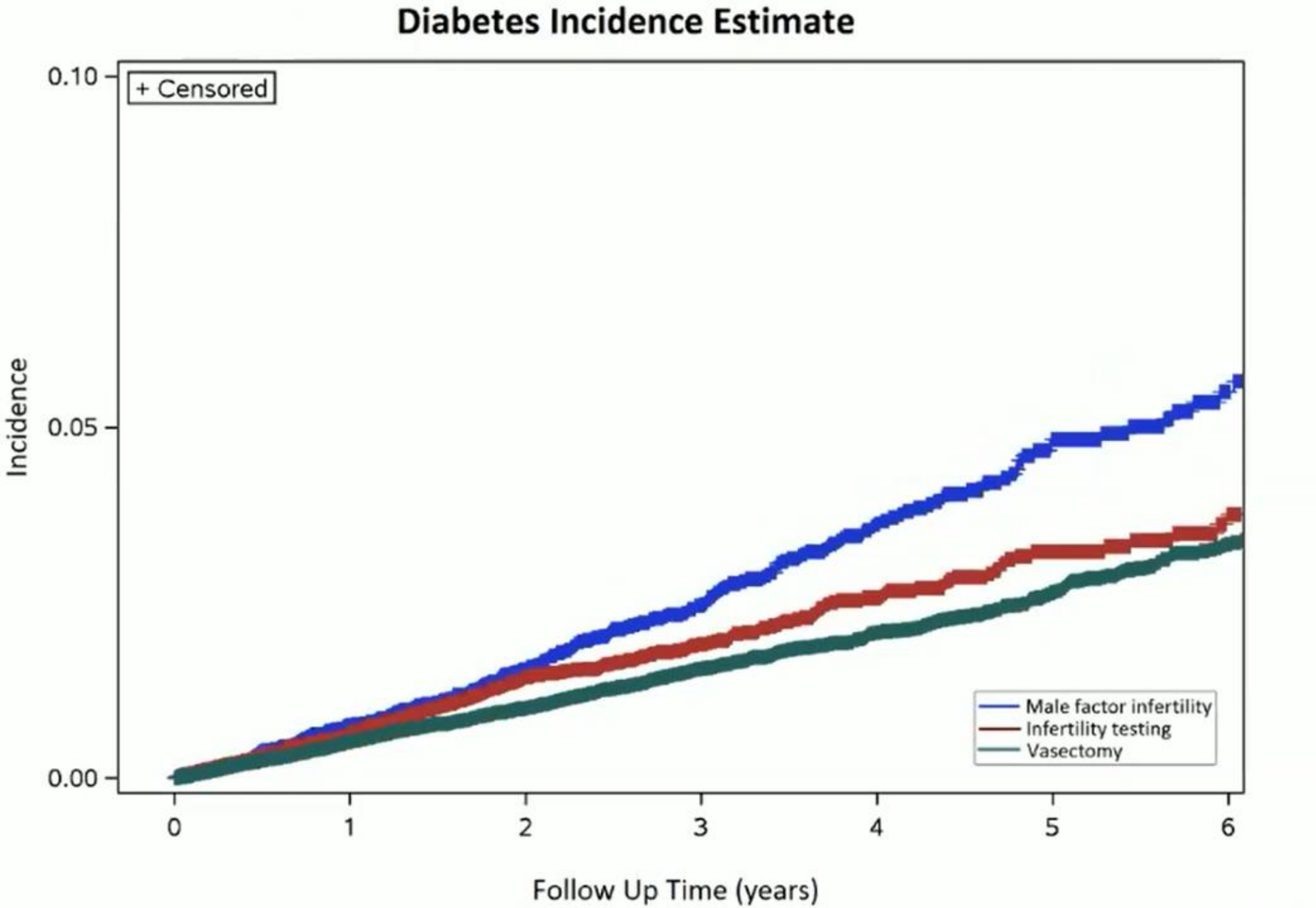
Vascular and Metabolic Disease

FERTILITY

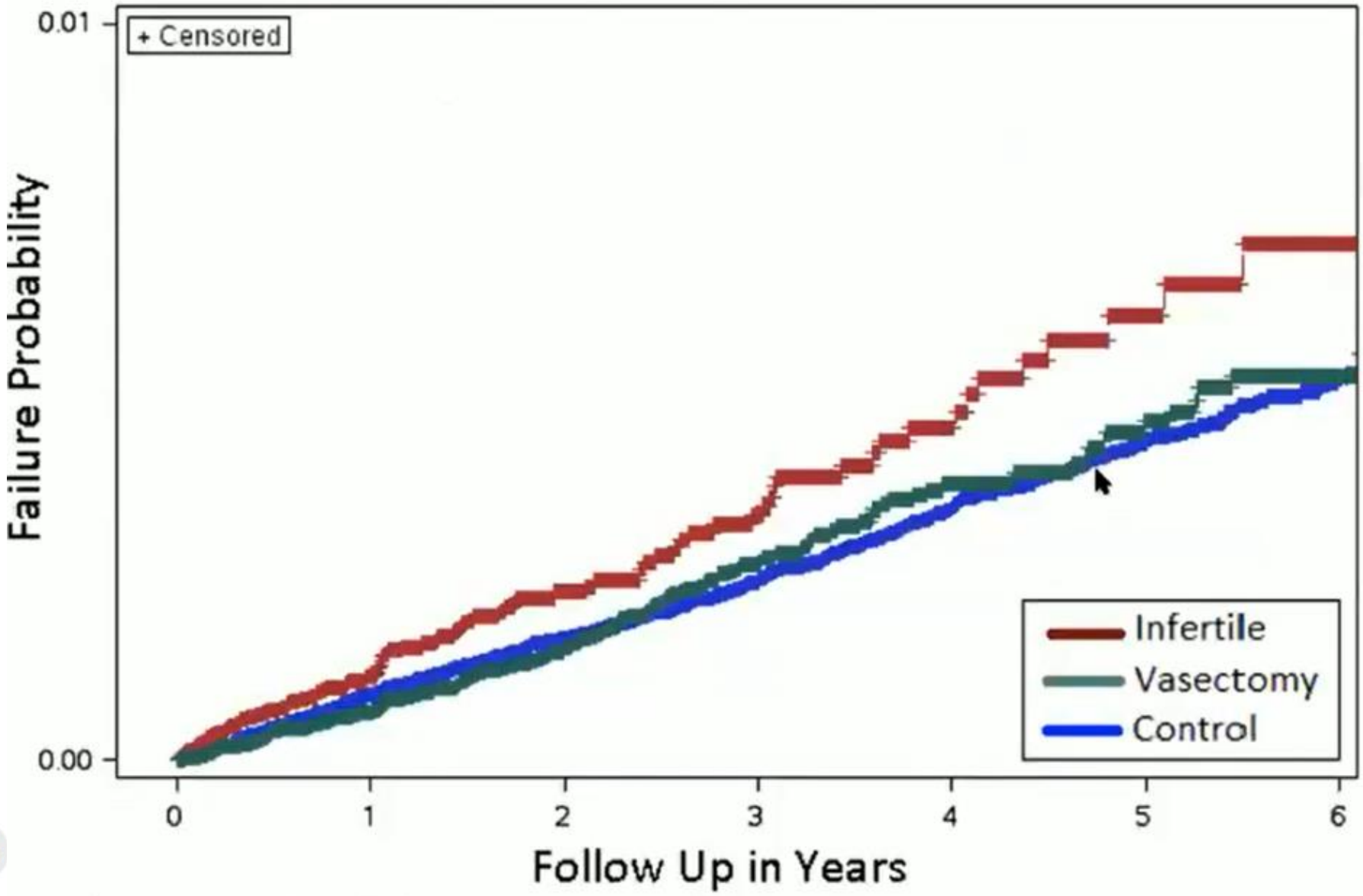
Ischemic Heart Disease Incidence Estimate



Eisenberg et al, Fert Ster, 2016

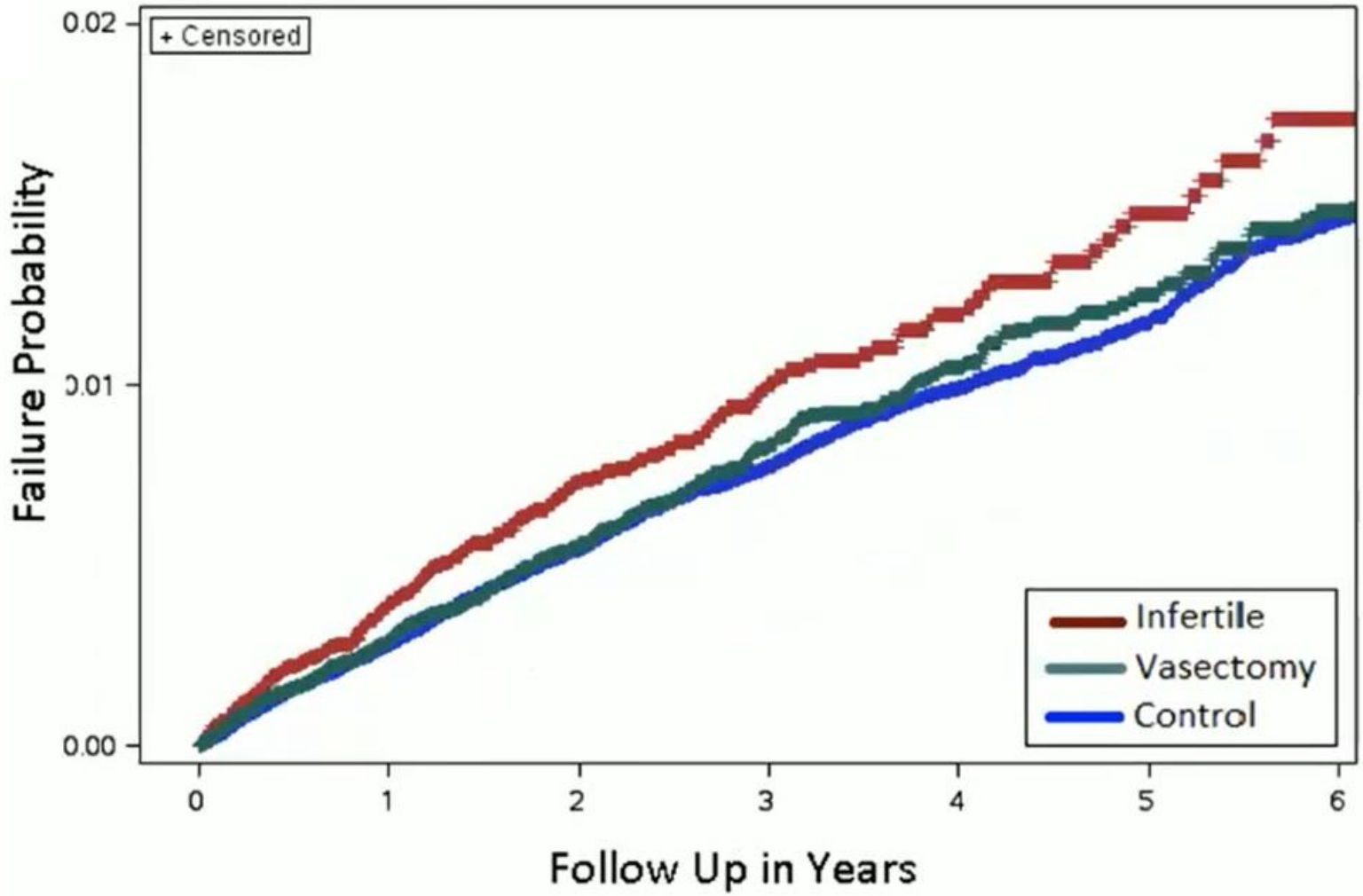

Diabetes Incidence Estimate
0.10
0.05
0.00
Incidence
+ Censored
Male factor infertility
Infertility testing
Vasectomy
0
1
2
3
4
5
6
Follow Up Time (years)

Rheumatoid Arthritis & Other Inflammatory Polyarthropathies Incidence Estimate



Brubaker et al, Andrology, 2018

Psoriasis Incidence Estimate



Brubaker et al, Andrology, 2018

FERTILITY

Infertility and Mortality

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

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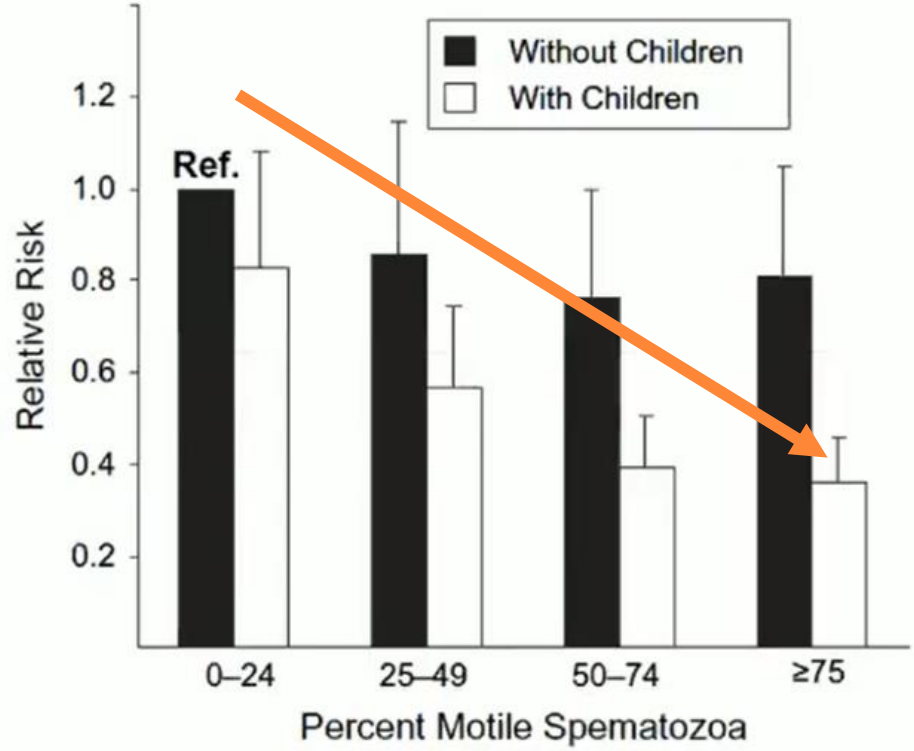
Comparison of semen parameters to mortality



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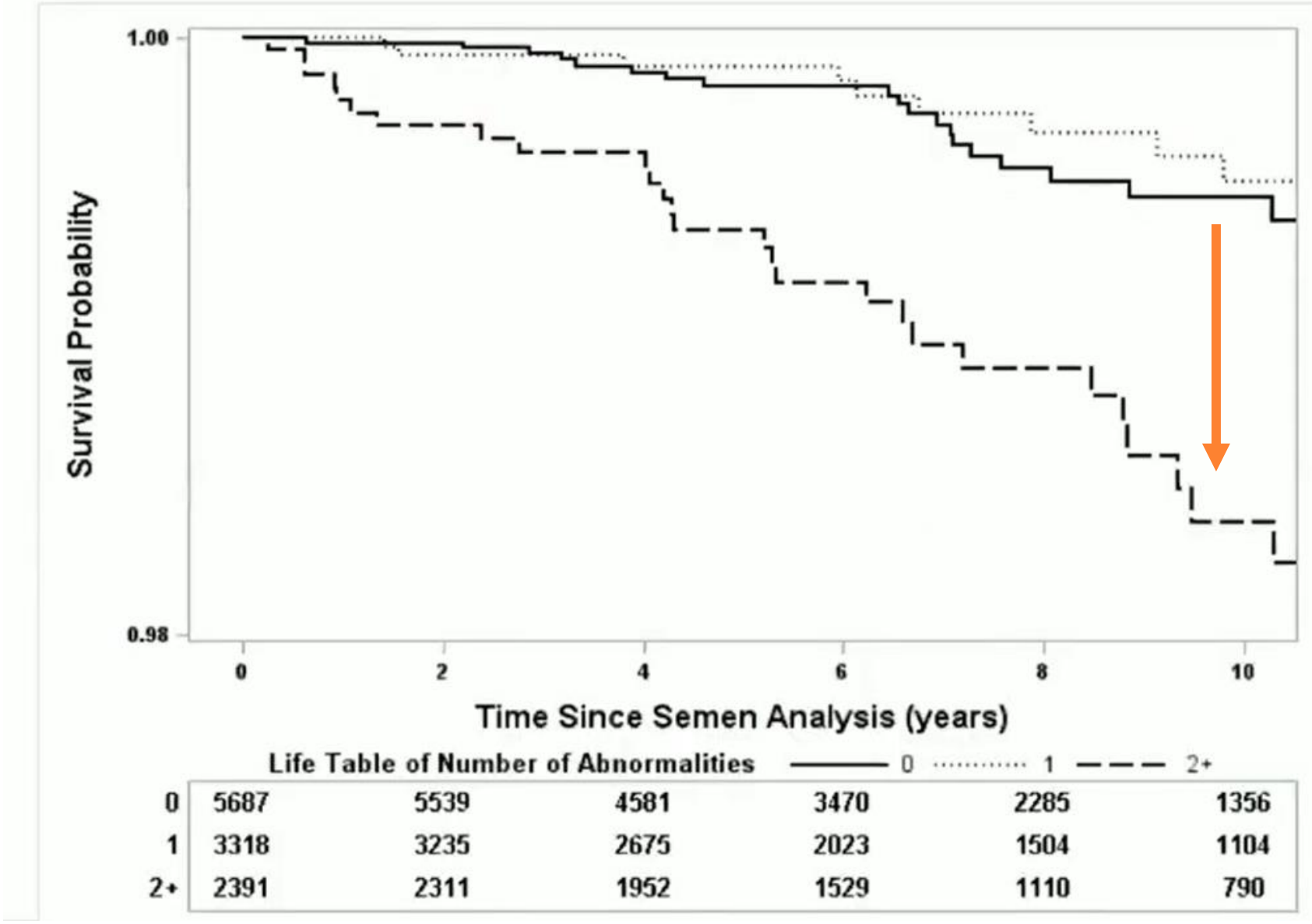

Life Table of Number of Abnormalities — 0 ····· 1 — — — 2+

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

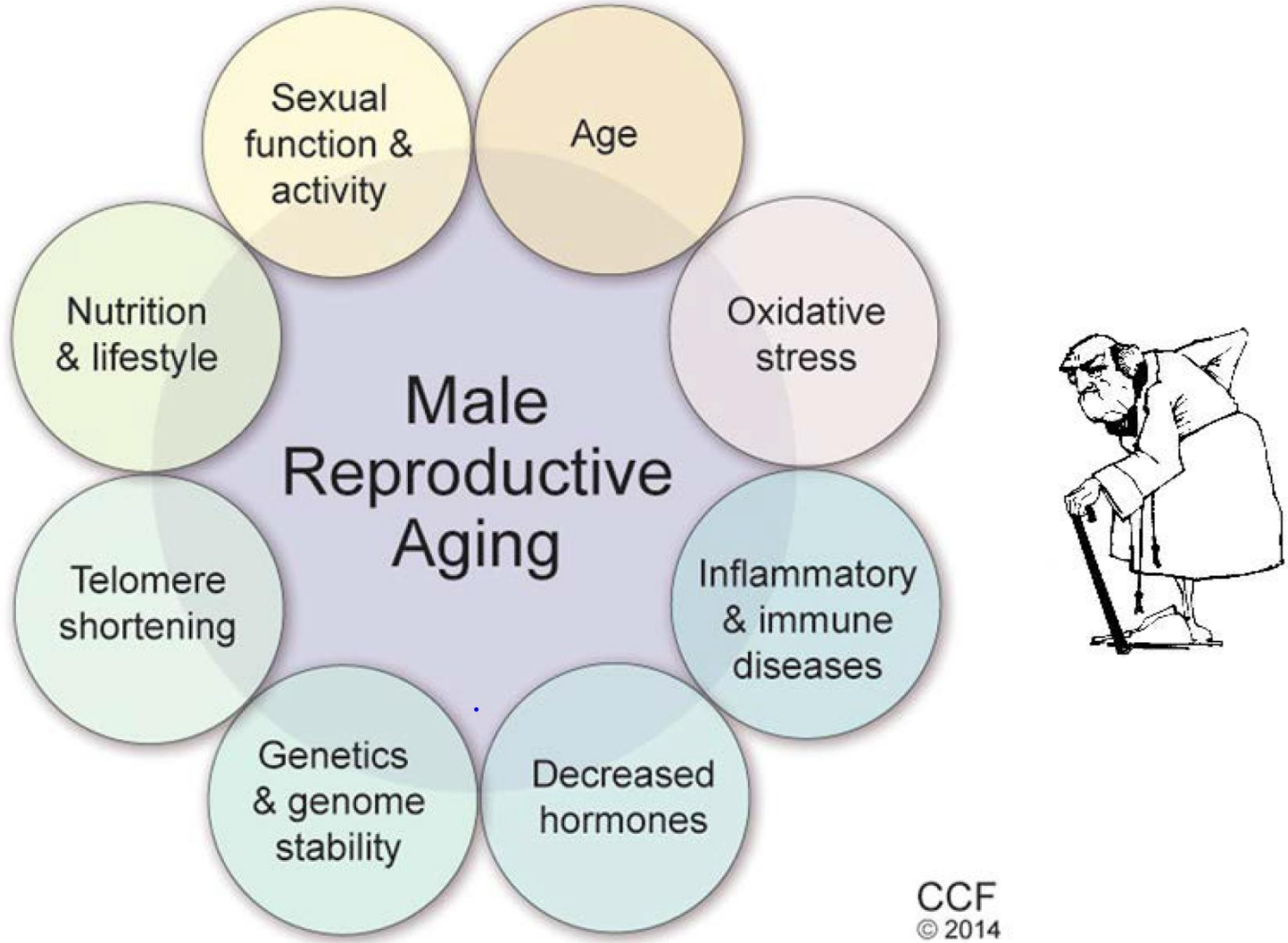

Figure 1 Main factors involved in impaired male infertility due to reproductive aging.

Human Reproduction Update, Vol.24, No.3 pp. 320–389, 2018
Advanced Access publication on February 15, 2018 doi:10.1093/humupd/dmy005

human reproduction update

The effect of paternal factors on perinatal and paediatric outcomes: a systematic review and meta-analysis

Nan B. Oldereid [1,*], Ulla-Britt Wennerholm[2], Anja Pinborg[3], Anne Loft[4], Hannele Laivuori[5,6,7,8], Max Petzold[9], Liv Bente Romundstad[10,11], Viveca Söderström-Anttila[12], and Christina Bergh[13]

[1]Livio IVF-klinikken Oslo, Sørkedalsveien 10A, 0369 Oslo, Norway [2]Department of Obstetrics and Gynaecology, Institute of Clinical Sciences, Sahlgrenska Academy, Gothenburg University, Sahlgrenska University Hospital East, SE 416 85 Gothenburg, Sweden [3]Department of Obstetrics and Gynecology, Hvidovre Hospital, Institute of Clinical Medicine, Copenhagen University Hospital, Copenhagen, Denmark [4]Fertility Clinic, Section 4071, Copenhagen University Hospital, Rigshospitalet, Blegdamsvej 9, DK–2100 Copenhagen, Denmark [5]Department of Obstetrics and Gynecology, Tampere University Hospital, Teiskontie 35, FI-33521 Tampere, Finland [6]Faculty of Medicine and Life Sciences, University of Tampere, Arvo Ylpön katu 34, FI-33520 Tampere, Finland [7]Medical and Clinical Genetics, University of Helsinki and Helsinki University Hospital, Haartmaninkatu 8, FI-00290 Helsinki, Finland [8]Institute for Molecular Medicine Finland, Helsinki Institute of Life Science, University of Helsinki, Tukhomankatu 8, FI-00290 Helsinki, Finland [9]Swedish National Data Service and Health Metrics Unit, University of Gothenburg, 405 30 Gothenburg, Sweden [10]Spiren Fertility Clinic, Norwegian University of Science and Technology, Trondheim NO-7010, Norway [11]Department of Public Health, Norwegian University of Science and Technology, Trondheim, Norway [12]Mehiläinen Felicitas, Mannerheimintie 20A, 00100 Helsinki, Finland [13]Department of Obstetrics and Gynaecology, Institute of Clinical Sciences, Sahlgrenska Academy, Gothenburg University, Reproductive Medicine, Sahlgrenska University Hospital, SE-413 45 Gothenburg, Sweden

- 14.371 artigos, 238 incluídos, 81 para a meta-análise
- Idade, estilo de vida, peso, altura, gordura corporal, cigarro

FERTILITY

Table XI **Summary results of the meta-analyses of the association between paternal factors and perinatal and paediatric outcomes.**

Exposure	Outcome	Pooled estimate (with 95% CI)	Certainty of evidence GRADE
Paternal age	PTB	1.02 (1.00–1.05)	⊕⊕◯◯
	Low BW	1.00 (0.97–1.03)	⊕⊕◯◯
	Stillbirth	1.19 (1.10–1.30)	⊕⊕◯◯
★	Children with any birth defects	1.05 (1.02–1.07)	⊕⊕⊕◯
★	CHDs	1.03 (0.99–1.06)	⊕⊕⊕◯
	Orofacial clefts	0.99 (0.95–1.04) 1.14 (1.02–1.29)*	⊕⊕◯◯
★	Gastroschisis	0.88 (0.78–1.00)	⊕⊕⊕◯
★	Spina bifida	0.97 (0.90–1.04)	⊕⊕⊕◯
★	Trisomy 21	1.13 (1.05–1.23)	⊕⊕⊕◯
★	Acute lymphoblastic leukaemia	1.08 (0.96–1.21)	⊕⊕⊕◯
★	Autism and ASDs	1.25 (1.20–1.30)	⊕⊕⊕◯
★	Schizophrenia	1.31 (1.23–1.38)	⊕⊕⊕◯
Paternal BMI	No meta-analysis		
Paternal smoking	PTB	1.16 (1.00–1.35)	⊕⊕◯◯
	Low BW	1.10 (1.00–1.21)	⊕⊕◯◯
	SGA	1.22 (1.03–1.44)	⊕⊕◯◯
	CHDs	1.75 (1.25–2.44)	⊕⊕◯◯
	Orofacial clefts	1.51 (1.16–1.97)	⊕⊕◯◯
	Brain tumours	1.12 (1.03–1.22)	⊕⊕◯◯

*Exposure: Paternal age >45 years.

FERTILITY

Human Reproduction Update, Vol.16, No.1 pp. 65–79, 2010
Advanced Access publication on August 20, 2009 doi:10.1093/humupd/dmp027

human reproduction update

Paternal age and reproduction

Gideon A. Sartorius[1,2] and Eberhard Nieschlag[1,3]

[1]Centre of Reproductive Medicine and Andrology of the University, Domagkstrasse 11, D-48149 Muenster, Germany [2]Present address:

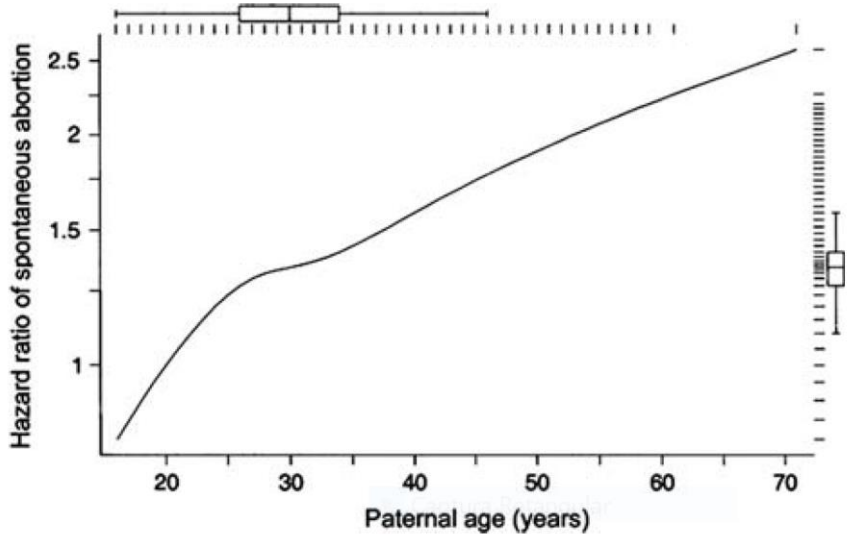

Figure 3 Hazard ratios of spontaneous miscarriages between 6 and 20 weeks according to paternal age adjusted for different confounders including maternal age (using prospective data from 5121 Californian women, men aged 20 years as referent).

Boxplots along the top and right side indicate data distribution according to each axis (with permission from Slama *et al.*, 2005).

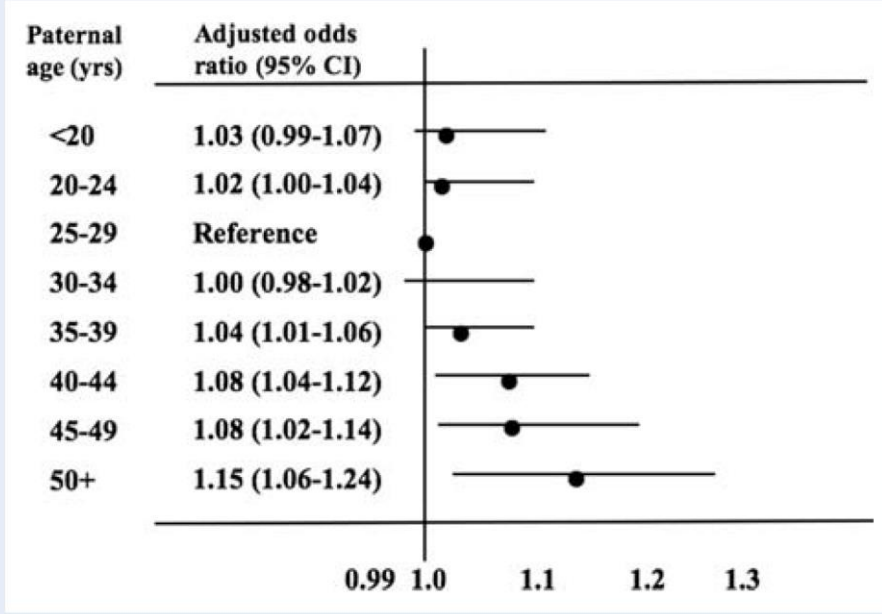

Figure 4 Relative risk of birth defects depending on paternal age.

Retrospective analysis of 5 213 248 subjects in the USA. Increased risk for heart defects, circulatory/respiratory defects, diaphragmatic hernia, tracheo-oesophageal fistulas, musculo-sceletal anomalies (data extracted from Yang *et al.*, 2007).


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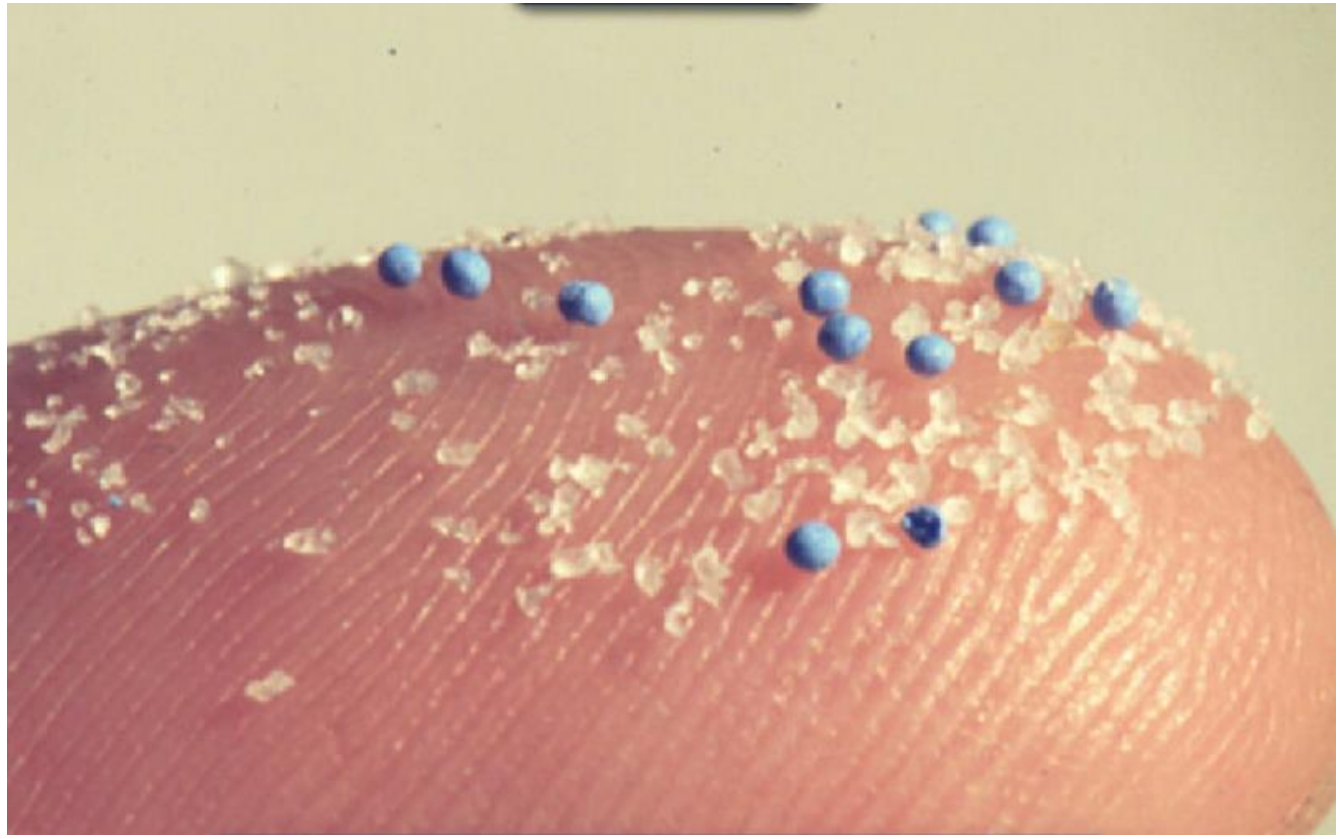
Aos 96 anos, indiano é o pai mais velho do mundo -...

FERTILITY



- O estudo foi realizado com moradores da região da Campânia e detectou no sêmen de seis pacientes ***16 fragmentos de microplásticos com dimensões entre dois e seis micrômetros***, ou seja, menores que um grão de poeira.

- Entre as substâncias encontradas ***estão polipropileno, polietileno, poliestireno, cloreto de polivinila, policarbonato e material acrílico.***

FERTILITY

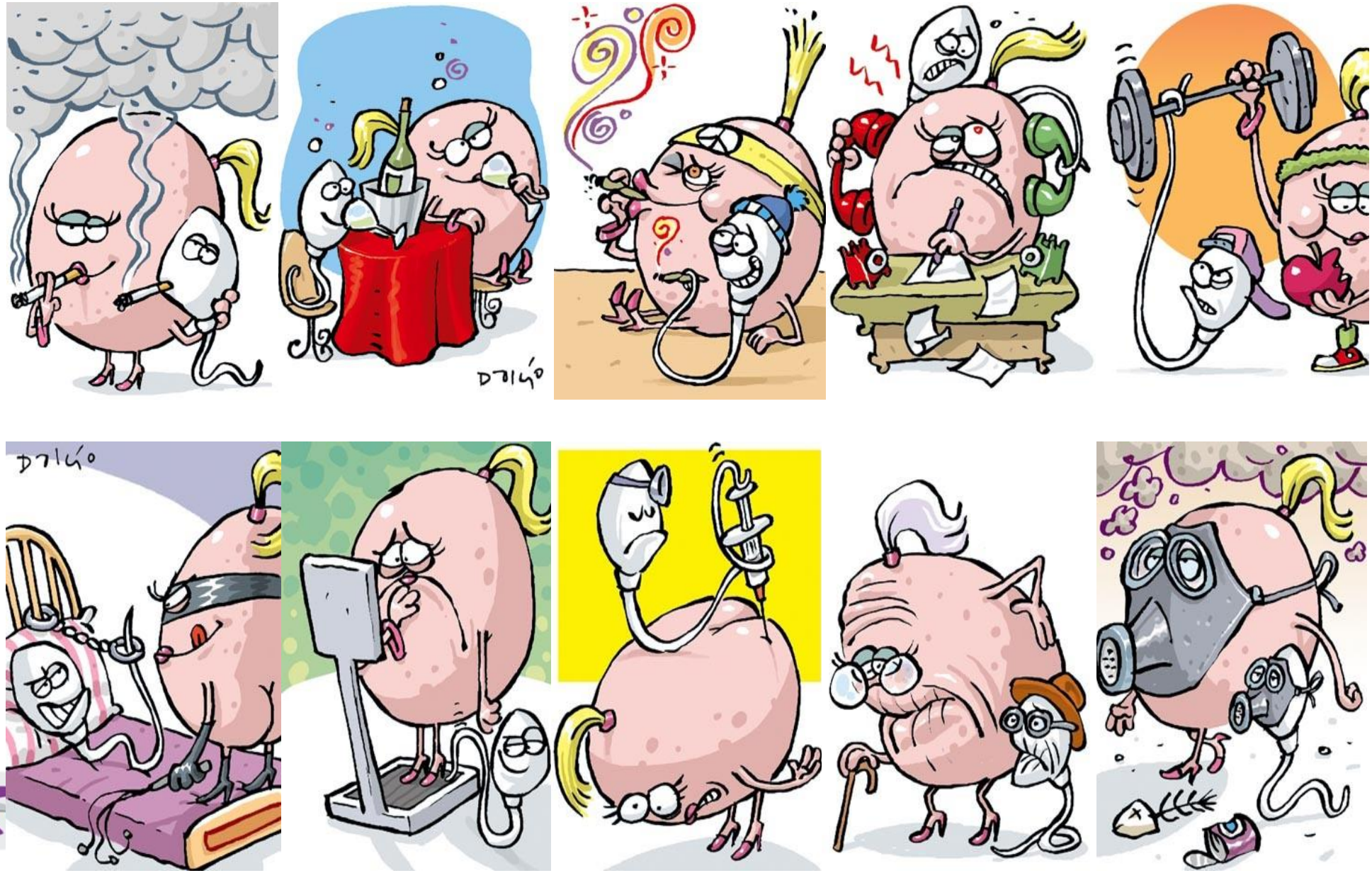
Summary

- Infertility = Health
- Infertility may provide window i… ealth
  - Cancer
  - Cardiovascular Dise…
  - Metabolic Dis…
  - Immun…
  - H… …ons
  - …ility

Male infertility as a window to health

F… …LITY

Dez mandamentos para preservar sua Fertilidade



Thank you!
Obrigado!

Dr. Edson Borges Jr.
www.fertility.com.br
E-mail: edson@fertility.com.br

FERTILITY
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