

EAA Andrology Training Center
Centre Report

2017



Reproductive Medicine Centre
Skane University Hospital
Lund University
Malmö, Sweden

CENTRE REPORT

History of Centre

The Centre was established in 2001 as Fertility Centre, a unit focusing on andrological patients, semen analysis, cryopreservation of spermatozoa and intrauterine insemination with husband's as well as donated sperms.

In March 2007, the Fertility Centre became a part of the new-established Reproductive Medicine Centre (RMC). The ambition behind RMC was to establish a multidisciplinary unit covering:

- Male and female reproductive function- investigation and treatment
- All types of assisted reproduction allowed in Sweden
- Fertility preservation for males and females
- Basic and advanced methods of semen analysis
- Clinical as well as laboratory research
- Education at pre- as well as postgraduate level
- Collaboration with other departments e.g. endocrinology, urology, pediatric endocrinology, pathology, clinical genetics and occupational and environmental medicine.

Since 2010 RMC has been a part of extensive collaboration within the area of reproductive medicine established in the Öresund Area (ReproSund: 2010-2013; ReproHigh: 2012-2014; ReproUnion: 2015-2018) the Copenhagen EAA Centre also being part of this network. The three ReproXXXX programs have been funded by the EU Interreg Fund and ReproUnion has also received funding from the three regions (Skane; Capital and Zealand) as well as pharmaceutical industry.

At the time of its establishment, the RMC was an independent clinic but in 2014, due to re-organization of the administrative structure of the Skane University Hospital, it became a part of a bigger unit – apart from reproductive medicine – including endocrinology, dermatology and ophthalmology.

Organization of Centre

- *Scanian Andrology Centre* is part of Reproductive Medicine Centre (RMC) the latter being located at Skane University Hospital in Malmö.
 - Skane University Hospital includes two hospitals: one in Lund and one in Malmö, both being joined with Lund University.
 - RMC was established in 2007 and was then an administrative and economical unit equal to other clinics at Skane University Hospital.
 - The first chairman of the RMC, Aleksander Giwercman, was also director of Scanian Andrology Centre.
 - The ambition behind RMC was creation of a multidisciplinary unit taking care of management of a broad panorama of reproductive disorders – both in males and females. Thus, apart from management of andrological patients (see below) the RMC is also taking care of:
 - a) Investigation and management of female reproductive disorders
 - b) Assisted reproduction including IVF, ICSI
 - c) Cryopreservation and use of donated gametes
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- d) Fertility preservation in females
 - e) Medical management of patients with gender dysphoria
- In 2013 it was decided to merge several clinics of the Skane University Hospital in order to establish units of approximately same size. Thus, since January 1st RMC is part of Department of Endocrinology-Reproductive Medicine – Dermatology – Ophthalmology (ERDO), having a chairman (actually Eva Bartholdson) and a Board.
 - The RMC is managed by a “Section Director” (sektionschef) - responsible for the clinical management of patients and for RMCs physicians and “Area Director” (områdeschef) responsible for the remaining staff and laboratory activities. Both are members of the Board of the ERDO Department.
 - Aleksander Giwercman has medical responsibility for the andrological activities of RMC as well as for clinical research.
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Educational activities

RMC has a number educational activities, both at pre- and postgraduate level and directed toward different professional groups. These activities include:

- Medical students
 - a) 10 weeks’ selective courses in reproductive medicine (usually 8-10 5th semester students per semester) including supervision of bachelor thesis (Yvonne Lundberg Giwercman and Aleksander Giwercman – course coordinators)
 - b) 5 weeks selective in Reproductive Medicine on 11th semester (approx. each 2nd semester) (Yvonne Lundberg Giwercman and Aleksander Giwercman – course coordinators)
 - c) Supervision of 10th semester students – master thesis (1-2 per semester)
 - d) 2 hours’ lecture in male reproductive function for all students at 5th semester
 - e) 1,5 hours’ lecture I “Infertility” on 9th semester
 - f) Clinical training of students attending course in gynecology (9th semester)
- Postgraduate educational activities
 - a) Annual/Biannual courses in male reproduction (infertility or male reproductive endocrinology) organized in collaboration with Copenhagen EAA Centre
 - b) Two weeks training of residents in gynecology
 - c) Training of residents in endocrinology
 - d) Monthly research seminars in framework of ReproUnion
 - e) Supervision of PhD students and post docs
- Education of other professional groups
 - a) Annual 3-days “Fertility School” for all newly employed staff members
 - b) Monthly research seminar for clinical and laboratory staff

Research activities

Formally the research carried out at RMC is done in the framework of two research groups being part of the Department of Translational Medicine at Medical Faculty of Lund University:

- *Molecular Genetic Reproductive Medicine (MGRM)* – headed by Associate Professor Yvonne Lundberg Giwercman
- *Molecular Reproductive Medicine (MRM)* – headed by Professor Aleksander Giwercman

The two research groups are closely collaborating in order to create a translational concept including epidemiological, clinical and laboratory/molecular elements.

The main areas of research of MGRM are

- Molecular aspects of androgen receptor function
- The impact of reproductive hormones on etiology and pathogenesis as well as on diagnostics of prostate cancer
- Genetic polymorphisms and precision medicine in ovarian hyperstimulation

For MRM the main research areas are:

- Impairment of sperm DNA integrity and its impact on *in vivo* and *in vitro* fertility
- The effect of cancer and cancer treatment on male and female reproductive function including health of the offspring of cancer patients
- Long term effects of hypogonadism in subfertile men
- The impact of environmental and lifestyle related factors on male reproductive function

Since 2010 and, in particular, during the past 5 years, as a part of the ReproHigh and ReproUnion collaboration, the two research groups have had a close scientific collaboration with colleagues on the Danish side of the Öresund area.

Through the collaboration between ReproUnion and European Association of Urology (EAU) as well as European Association of Human Reproduction and Embryology (ESHRE), the RMC and Lund University is hosting post docs from European countries outside Sweden and Denmark.

Clinical activities

Reproductive Medicine Centre (RMC) is the only public/university centre of reproductive medicine in Southern Sweden (approx. 2 million inhabitants).

The patients can refer themselves for investigation/treatment but RMC also serves as

referral centre for general practitioners; private specialists (e.g. urologists, gynaecologists), and other hospital units – both at university and other hospitals.

The main areas of clinical activities include:

1. Couple infertility out-patient clinic: where the female partner is seen by gynaecologist and the male partner by andrologist
 2. Other types of andrological out-patient activities: with main focus on infertility, hypogonadism incl. sequelae of cancer treatment; erectile dysfunction (medical treatment). Scrotal ultrasound is routinely done in those patients
 3. Fertility preservation: male and female – includes pre- and post-cryopreservation counselling and cryopreservation
 4. TESE/TESA/PESE: for sperm retrieval (NOA/OA) and for diagnosis of Germ cell Neoplasia in Situ. For mTESE the patients are referred to Herlev Hospital, Copenhagen.
 5. Assisted reproduction: IUI; IVF; ICSI incl. use of donated spermatozoa/oocytes
 6. Gynaecological endocrinology out-patient clinic
 7. Transgender dysphoria out-patient clinic.
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Name and address of Centre

Reproductive Medicine Centre
 Skane University Hospital
 Jan Waldenströms Gata 47
 SE 214 48 Malmö
 Sweden

Type of Centre

University	☐
University Hospital	☒
Private Centre	☐

Other (please
 specify)

1. Director

Aleksander Giwercman

Academician ☒

Affiliated Member ☐

Clinical Andrologist ☐

2a. Clinical responsible

Katarina Link

Academician ☐

Affiliated Member ☒

Clinical Andrologist ☐

2b. Clinical responsible

Margareta Kitlinski

Academician ☐

Affiliated Member ☐

Clinical Andrologist ☐

2c. Clinical responsible

Academician ☐

Affiliated Member ☐

Clinical Andrologist ☐

3. Present Staff (*Senior Scientists*)

1) Name Yvonne Lundberg Giwercman
Degree PhD, Associate Professor
Speciality Molecular Biology

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

2) Name Mona Bungum
Degree PhD
Speciality Embryology

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

Insert any additional staff below (if required)

MD/Biologists/Chemists

1) Name Ilpo Huhtaniemi
 Degree Professor Emeritus
 Speciality Reproductive Physiology
 Full time/part time Part time

Academician ☒ Affiliated Member ☐ Clinical Andrologist ☐

2) Name Dorota Trzybulska
 Degree PhD; post doc
 Speciality Molecular Biology
 Full time/part time Full time

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

3) Name Ida Lindgren
 Degree PhD, post doc
 Speciality Molecular Biology
 Full time/part time Full time

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

4) Name Hannah Nenonen
 Degree PhD, post doc
 Speciality Molecular Biology
 Full time/part time Full time

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

5) Name Magdalena Bentmar-Holgersson
 Degree PhD, post doc
 Speciality Molecular Biology
 Full time/part time Full time

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

6) Name Angel Elenkov
 Degree MD, PhD
 Speciality Urology
 Full time/part time Full time post doc on a EAU-ReproUnion scholarship

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

Insert any additional staff below (if required)**Specialists**

- | | |
|---------|----------------------|
| 1) Name | Krzysztof Oleszczuk |
| 2) Name | Emir Hemic |
| 3) Name | Pia Leandersson |
| 4) Name | Emma Condori Nilsson |
| 5) Name | |

PhD Students
Name

- | | |
|---------|--|
| 1) | Yahia Al-Jebari |
| 2) Name | Amelie Stenqvist |
| 3) Name | Sigrid Isaksson |
| 4) Name | Karolina Bogefors
Emma Nilsson Condori
Pia Leandersson |

Nurses

Petronella Kindt
Marika Von Liliencron
Monica Nilsson
Nina Nwese
Emma Lindén
Kim Wallgren
Linda Ardemalm
Anette Hansson
Sophia Ring
Maria Schannong

Laboratory Technicians

Jolita Ruckaite
Nour Al-Waily
Marie Andersson
Lisa Nolte
Kerstin Fritz
Cecilia Tingsmark
Susanne Lundin
Alexandra Prah
Anton Arvidson
Linus Bogesjö
Lina Olsson

Administrative Personnel

Camilla Persson
Emilie Bellander
Carina Eklund
Helen Karlsson
Moa Fransson

4. Clinical Activity

A. Outpatients: Consultations (male patients – not assisted reproduction) per year in the last 3 years

	2014	2015	2016
New patients	349	392	356
Follow-up patients	481	484	538

Type of patients in the last years (%)	2014 %	2015 %	2016 %
Infertility	56	64	61
Erectile dysfunction	4	2	2
Hypogonadotropic Hypogonadism	1	1	1
Klinefelter	4	3	3
Gynaecomastia	1	1	1
Varicocele*	2	<1	<1
Cryptorchidism*	<1	<1	<1
Male sex accessory gland infections*	<1	<1	<1
Testicular tumours	15	7	10
Disorders of gender identity	10	17	15
Other-fertility preservation	9	5	6

B. Ultrasound (testis, penile, prostate) *

	2014	2015	2016
Total	755	790	642
Controls	-	-	-

** performed at the Department of Radiology*

C. Andrological surgery procedures

	2014	2015	2016
Testicular biopsies	51	46	62
Varicocele ligation*			
Prostate biopsies*			
BPH *			
Prostate cancer*			
Vasectomy*			
Vaso-vasostomy*			
Other			

***: At Reproductive Medicine Centre, apart from testicular biopsies, no surgical andrological procedures are performed. Therefore some of the surgical diagnoses are rare or not given at all.**

5. A. Andrology laboratory activity

	2014	2015	2016
Semen analyses	2578	3034	3047
Sperm antibodies	14	10	11
Seminal markers (biochem + SCSA)	2235	2431	2508

5. B. Andrology laboratory activity

Sperm banking donors Yes ☒ No ☐

Sperm banking cancer patients Yes ☒ No ☐

If yes:			
	2014	2015	2016
Number of samples (donors)	100	104	102
Number of samples (cancer pt)	268	257	269

5. C. Histopathological evaluation of biopsies Yes ☐ No ☒

5. D. Reproductive Hormones Assays Yes ☐ No ☒

If yes please specify type of assays and number of samples in the last year

Reproductive Hormones Assays

(FSH, LH, testosterone, SHBG, prolactin)

5. E. Y chromosome microdeletions according to EAA/EMQN guidelines Yes ☐ No ☒

If yes number of tests in the past year

Participation to the EAA quality control scheme? Yes ☐ No ☐

If no, specify if available in another lab of the same hospital Yes ☒ No ☐

Blood karyotyping Yes ☐ No ☒

If no, specify if available in another lab of the same hospital Yes ☒ No ☐

Other genetic tests (please specify)

FISH sperm

Pre-implantation genetic diagnosis

Amniotic fluid karyotyping

Sperm Chromatin Structure Assay; Time-lapse microscopy

6. Collaborations with other Clinical Units of the University/Hospital

IVF Unit

Yes ☒

No ☐

If yes please specify: Children, Endocrinology, IVF, Urology, Genetics, Pathology

IVF Unit is part of the Centre

Urology Clinic

Yes ☒

No ☐

Endocrine Clinic

Yes ☒

No ☐

Genetics Lab/Unit

Yes ☒

No ☐

Paediatric Unit

Yes ☒

No ☐

Central Hospital Laboratory

Yes ☒

No ☐

Private Centres

Yes ☒

No ☐

If yes please specify:

CuraÖresund IVF Clinic; Nordic IVF

7. Clinical teaching activity

Duration of training (years):

	Number
A: Trainees in the last five years	3
B: Trainees who passed EAA-ESAU\exam for Clinical Andrologist in the last 5 yrs	1
C: Trainees working in the centre preparing to pass the EAA-ESAU examination	2
D: PhD Students	6
E: Medical Students	9
F: Other students (MSc)	-

8. Formal Andrology teaching program

Yes ☐

No ☒

If yes: specify duration (years/months):

Years

Months

	Hours of formal teaching per year	Professional training (weeks/months)
Medical Students	Approx. 250	
PhD Students	Approx. 1000	
Post Graduate students		
Trainees		
Other degrees (please specify)		

9. Research Activity (maximum 1 page)

Please shortly describe the main research topics of the center and list the most relevant papers in peer review journals (with IF) related to these activities.

The full list of publications (years 2010 - 2015) are presented at the end of this report.

Please, see page 5

1. Bobjer J, Katrinaki M, Tsatsanis C, Lundberg Giwercman Y, **Giwercman A**. Negative association between testosterone concentration and inflammatory markers in young men: a nested cross-sectional study. *PlosOne*. 2013;8:e61466.
2. Isaksson S, Eberhard J, Ståhl O, Cavallin-Ståhl E, Cohn-Cedermark G, Arver S, Lundberg Giwercman Y, **Giwercman A**. Inhibin B concentration is predictive for long-term azoospermia in men treated for testicular cancer. *Andrology*. 2014 Mar;2(2):252-8
3. Bentmar Holgersson M, **Giwercman A**; EMAS group, Bjartell A, Wu FC, Huhtaniemi IT, O'Neill TW, Pendleton N, Vanderschueren D, Lean ME, Han TS, Finn JD, Kula K, Forti G, Casanueva FF, Bartfai G, Punab M; EMAS group, Lundberg Giwercman Y. Androgen receptor polymorphism-dependent variation in prostate-specific antigen concentrations of European men. *Cancer Epidemiol Biomarkers Prev*. 2014 Oct;23(10):2048-56.
4. Tsatsanis C, Bobjer J, Rastkhani H, Dermitzaki E, Katrinaki M, Margioris AN, Giwercman YL, **Giwercman A**. Serum miR-155 as a potential biomarker of male fertility. *Hum Reprod*. 2015 Apr;30(4):853-60.
5. Bandel I, Bungum M, Richtoff J, Malm J, Axelsson J, Pedersen HS, Ludwicki JK, Czaja K, Hernik A, Toft G, Bonde JP, Spanò M, Malm G, Haugen TB, **Giwercman A**. No association between body mass index and sperm DNA integrity. *Hum Reprod*. 2015 Jul;30(7):1704-13.
6. Oleszczuk K, **Giwercman A**, Bungum M. Sperm chromatin structure assay in prediction of in vitro fertilization outcome. *Andrology*. 2016 Mar;4(2):290-6
7. Bobjer J, Bogefors K, Isaksson S, Leijonhufvud I, Åkesson K, Giwercman YL, **Giwercman A**. High Prevalence of Hypogonadism and Associated Impaired Metabolic and Bone Mineral Status in Subfertile Men. *Clin Endocrinol (Oxf)*. 2016 Feb 9. doi: 10.1111/cen.13038
8. Lindgren I, Bååth M, Uvebrant K, Dejmeek A, Kjaer L, Henic E, Bungum M, Bungum L, Cilio C, Leijonhufvud I, Skouby S, Andersen CY, Giwercman YL. Combined assessment of polymorphisms in the LHCGR and FSHR genes predict chance of pregnancy after in vitro fertilization. *Hum Reprod*. 2016 Mar;31(3):672-8
9. Bentmar Holgersson M, Ruhayel Y, Karlsson M, Giwercman A, Bjartell A, Ohlsson C, Mellström D, Ljunggren Ö, Haghsheno MA, Damber JE, Lundberg Giwercman Y. Lower prostate cancer risk in Swedish men with the androgen receptor E213 A-allele. *Cancer Causes Control*. 2017 Mar;28(3):227-233.
10. Bentmar Holgersson M, Landgren F, Rylander L, Lundberg Giwercman Y. Mortality Is Linked to Low Serum Testosterone Levels in Younger and Middle-aged Men. *Eur Urol*. 2017 Jun;71(6):991-992. doi: 10.1016/j.eururo.2016.11.036. Epub 2016 Dec 16.

10. Research Funding

Please specify the amount of available funds in the last 3 years and their source (Government, European Union, University, Local Government, Pharmaceutical Industries, Banks, Foundations....)

Year	2015-2017
Total amount (€)	Approx. 1 000 000 €/year
Funding Source(s)	EU (Interreg V; Swedish Research Council; Swedish Cancer Society; Swedish Governmental Funding; Region Skane; Swedish Society of Childhood Cancer)

Insert any additional funding below if required

ORGANIZATION CHARTS

Organization charts legend: Department / Unit Structure

Reproductive Medicine Centre

Heads of the Unit:
Margareta Kitlinski/Mona Bungum
Director Andrology:
Aleksander Giwercman

Please, see pages 7-10

Clinical Activities

Andrological outpatient clinic
Infertility outpatient clinic (couples)
Female reproductive endocrinology
Gender dysphoria
IUI/IVF/ICSI
Fertility preservation (male/female)
TESE/TESA/mTESE*

*mTESE – in collaboration with Herlev Hospital, Copenhagen

Contribution to EAA training

Infertility investigation
Infertility management
Assisted reproduction
Other andrological conditions
Scrotal ultrasound
Testicular biopsy
Fertility preservation
Ethics in reproduction
Gender dysphoria

CENTRE PHOTOS



FULL LIST OF PUBLICATIONS (with IF) of staff members from the last 5 years

11. Lee DM, Tajar A, Ravindrarajah R, Pye SR, O'Connor DB, Corona G, O'Connell M, Gielen E, Boonen S, Vanderschueren D, Pendleton N, Finn JD, Bartfai G, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Punab M, Wu FC, O'Neill TW; the European Male Aging Study Group. Frailty and Sexual Health in Older European Men. *J Gerontol A Biol Sci Med Sci*. 2013;68:837-44
12. Tajar A, Lee DM, Pye SR, O'Connell MD, Ravindrarajah R, Gielen E, Boonen S, Vanderschueren D, Pendleton N, Finn JD, Bartfai G, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Punab M, Wu FC, O'Neill TW. The association of frailty with serum 25-hydroxyvitamin D and parathyroid hormone levels in older European men. *Age Ageing*. 2013;42:352-9.
13. Mocevic E, Specht IO, Marott JL, **Giwerzman A**, Jönsson BA, Toft G, Lundh T, Bonde JP. Environmental mercury exposure, semen quality and reproductive hormones in Greenlandic Inuit and European men: a cross-sectional study. *Asian J Androl*. 2013;15:97-104
14. Vanderschueren D, Pye SR, O'Neill TW, Lee DM, Jans I, Billen J, Gielen E, Laurent M, Claessens F, Adams JE, Ward KA, Bartfai G, Casanueva FF, Finn JD, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Pendleton N, Punab M, Wu FC, Boonen S; EMAS Study Group. Active Vitamin D (1,25-Dihydroxyvitamin D) and Bone Health in Middle-Aged and Elderly Men: The European Male Aging Study (EMAS). *J Clin Endocrinol Metab*. 2013;98:995-1005.
15. Brokken LJ, Lundberg-Giwerzman Y, Meyts ER, Eberhard J, Ståhl O, Cohn-Cedermark G, Daugaard G, Arver S, **Giwerzman A**. Association between polymorphisms in the aryl hydrocarbon receptor repressor gene and disseminated testicular germ cell cancer. *Front Endocrinol (Lausanne)*. 2013;4:4
16. Camacho EM, Huhtaniemi IT, O'Neill TW, Finn JD, Pye SR, Lee DM, Tajar A, Bartfai G, Boonen S, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Kula K, Keevil B, Lean ME, Pendleton N, Punab M, Vanderschueren D, Wu FC; EMAS Group. Age-associated changes in hypothalamic-pituitary-testicular function in middle-aged and older men are modified by weight change and lifestyle factors: longitudinal results from the European Male Ageing Study. *Eur J Endocrinol*. 2013;168:445-55.
17. Bobjer J, Katrinaki M, Tsatsanis C, Lundberg Giwerzman Y, **Giwerzman A**. Negative association between testosterone concentration and inflammatory markers in young men: a nested cross-sectional study. *PlosOne*. 2013;8:e61466
18. Pikwer M; **Giwerzman, A**; Bergström, U.; Nilsson, J-Å.; Jacobsson, L.T.H.; Turesson, C. Association Between Testosterone Levels and Risk of Future Rheumatoid Arthritis in Men – a Population Based Case-control Study. *Annals of the Rheumatic Disease*. 2014;73:573-9.
19. Oleszczuk K, Augustinsson L, Bayat N, **Giwerzman A**, Bungum M. Prevalence of high DNA fragmentation index in male partners of unexplained infertile couples. *Andrology*. 2013;1:357-60
20. Ohlsson C, Nilsson ME, Tivesten A, Ryberg H, Mellström D, Karlsson MK, Ljunggren Ö, Labrie F, Orwoll ES, Lee DM, Pye SR, O'Neill TW, Finn JD, Adams JE, Ward KA, Boonen S, Bartfai G, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Pendleton N, Punab M, Vanderschueren D, Wu FC; EMAS Study Group, Vandenput L. Comparisons of immunoassay and mass spectrometry measurements of serum estradiol levels and their influence on clinical association studies in men. *J Clin Endocrinol Metab*. 2013;98: E1097-102. Epub 2013 Apr 30.

21. Axelsson J, Rylander L, Rignell-Hydbom A, Silfver KA, Stenqvist A, **Giwerzman A**. The Impact of Paternal and Maternal Smoking on Semen Quality of Adolescent Men. *PLoS One*. 2013 Jun 26;8(6):e66766
22. Ravindrarajah R, Lee DM, Pye SR, Gielen E, Boonen S, Vanderschueren D, Pendleton N, Finn JD, Tajar A, O'Connell MD, Rockwood K, Bartfai G, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Punab M, Wu FC, O'Neill TW; European Male Aging Study Group. The ability of three different models of frailty to predict all-cause mortality: results from the European Male Aging Study (EMAS). *Arch Gerontol Geriatr*. 2013;57: 360-8. doi: 10.
23. Bungum L, Franssohn F, Bungum M, Humaidan P, **Giwerzman A**. The circadian variation in Anti-Müllerian hormone in patients with polycystic ovary syndrome differs significantly from normally ovulating women. *PLoS One*. 2013;8: e68223. doi:
24. Sävbom C, Halldén C, Cronin AM, Säll T, Savage C, Vertosick EA, Klein RJ, **Giwerzman A**, Lilja H. Genetic Variation in KLK2 and KLK3 Is Associated with Concentrations of hK2 and PSA in Serum and Seminal Plasma in Young Men. *Clin Chem*. 2013. [Epub ahead of print]
25. Lee DM, Vanderschueren D, Boonen S, O'Neill TW, Pendleton N, Pye SR, Ravindrarajah R, Gielen E, Claessens F, Bartfai G, Casanueva FF, Finn JD, Forti G, **Giwerzman A**, Han TS, Huhtaniemi IT, Kula K, Lean ME, Punab M, Wu FC; the European Male Ageing Study Group. Association of 25-hydroxyvitamin D, 1,25-dihydroxyvitamin D and parathyroid hormone with mortality among middle-aged and older European men. *Age Ageing*. 2013; [Epub ahead of print]
26. Pye SR, Huhtaniemi IT, Finn JD, Lee DM, O'Neill TW, Tajar A, Bartfai G, Boonen S, Casanueva FF, Forti G, **Giwerzman A**, Han TS, Kula K, Lean ME, Pendleton N, Punab M, Rutter MK, Vanderschueren D, Wu FC; the EMAS Study Group. Late-Onset Hypogonadism and Mortality in Aging Men. *J Clin Endocrinol Metab*. 2013. [Epub ahead of print]
27. Kaspersen MD, Bungum M, Fedder J, Bonde J, Larsen PB, J Ingerslev H, Höllsberg P. No increased sperm DNA fragmentation index in semen containing human papillomavirus or herpesvirus. *Andrology*. 2013 May;1(3):361-4. doi: 10.1111/j.2047-2927.2013.00067.x. Epub 2013 Feb 27
28. **Giwerzman A**, Giwerzman YL. Epidemiology of male reproductive disorders. In: De Groot LJ, Beck-Peccoz P, Chrousos G, Dungan K, Grossman A, Hershman JM, Koch C, McLachlan R, New M, Rebar R, Singer F, Vinik A, Weickert MO, editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-.2013
29. Dohle GR, Diemer T, Kopa Z, Krausz C, Beyer J, Albers P, Altena R, Aparicio J, Bokemeyer C, Busch J, Cathomas R, Cavallin-Stahl E, Clarke NW, Claßen J, Cohn-Cedermark G, Dahl AA, Daugaard G, De Giorgi U, De Santis M, De Wit M, De Wit R, Dieckmann KP, Fenner M, Fizazi K, Flechon A, Fossa SD, Germá Lluch JR, Gietema JA, Gillissen S, **Giwerzman A**, Hartmann JT, Heidenreich A, Hentrich M, Honecker F, Horwich A, Huddart RA, Kliesch S, Kollmannsberger C, Krege S, Laguna MP, Looijenga LH, Lorch A, Lotz JP, Mayer F, Necchi A, Nicolai N, Nuver J, Oechsle K, Oldenburg J, Oosterhuis JW, Powles T, Rajpert-De Meyts E, Rick O, Rosti G, Salvioni R, Schrader M, Schwyer S, Sedlmayer F, Sohaib A, Souchon R, Tandstad T, Winter C, Wittekind C. Maintaining success, reducing treatment burden, focusing on survivorship: highlights from the third European consensus conference on diagnosis and treatment of germ-cell cancer. *Ann Oncol*. 2013, 2013;24:878-88.

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