

**Fertilitetsklinikken
Regionshospitalet Skive**

**Organisation, produktion
og resultater 2023**



Formål

Formålet med denne rapport er, at give borgere, relevante myndigheder, instanser og kolleger et indblik i den fertilitetsfremmende virksomhed samt redegøre for organisation, produktion og resultater for Fertilitetsklinikken, Regionshospitalet Skive.

Mission

At dække det offentlige hospitalsvæsens behov for infertilitetsudredning og behandling i Region Midtjylland i samarbejde med de øvrige fertilitetsklinikker i regionen.

At tilbyde behandling til patienter fra de øvrige regioner i Danmark.

At have forskningsaktivitet inden for området infertilitet, med henblik på udvikling og forbedring af nuværende behandlinger og implementering af nye behandlingsmetoder.

Personale

Fertilitetsklinikken daglige ledelse består af en lægelig klinikchef og en afd.bioanalytiker. Det øvrige personale består af læger, sygeplejersker, bioanalytikere, lægesekretærer, en rengøringsassistent samt servicemedarbejdere.

Normering 2023

Stilling	Professor	Læger	Sygeplejersker	Bioanalytikere	Lægesekretærer
Ansatte	1	3	7	7	3

Uddannelse og undervisning

Overlæge Birgit Alsbjerg har taget ekspertuddannelse i fertilitet og er i gang med at lave Ph.d. Afdelingen har 2 Ph.d. studerende og flere tilknyttede samt medicinstuderende.

Herudover medvirker klinikken ved uddannelsen af yngre læger samt lægestuderende, sygeplejerskestuderende, bioanalytikerstuderende og jordemoderstuderende.

Aktivitetsliste

- Δ Udredning af infertilitet
- Δ Insemination med anvendelse af mandens sæd (IUI-H)
- Δ Insemination med anvendelse af donorsæd (IUI-D)
- Δ In Vitro fertilisering (IVF)
- Δ IVF med mikroinsemination (ICSI)
- Δ Diagnostisk biopsi af testikler
- Δ Δ Operativ udhentning af sædceller (PESA/TESA) kombineret med ICSI
- Δ Behandling med oplægning af nedfrosne/optøede befrugtede æg (FER)
- Δ Assisted hatching (AHA)
- Δ Ægdonation
- Δ Sæddeponering
- Δ Vævsdeponering (testisvæv)
- Δ Akupunkturbehandling ved ægudhentning
- Δ Akupunkturbehandling ved ægtilbagelægning
- Δ Vægtsamtaler og instruktion til vægttab
- Δ Rygestop instruktion
- Δ Nedfrysning af sædceller (specialmetode ved få sædceller)
- Δ Nedfrysning af æg
- Δ Fertilitetsrådgivning
- Δ Hysteroskopi

Produktion gennem de sidste 5 år

Årstal	2019	2020	2021	2022	2023
Henvisninger	744	859	811	588	643
Konsultationer (fysiske) +virtuelle kontakter	9272	7616 I alt 14247	7881 I alt 15340	6619 I alt 12667	7196 I alt 13144
Ægudtagning	563	577	636	554	575
Ægoplægning	292	230	243	271	216
PESA/TESA	68	39	31	56	29
HSU	138	101	65	51	50
Graviditetsskanning	680	597	664	542	598
Frysebehandling (FER)	571	567	713	625	635
FER med oplægning	558	555	703	616	622
IUI-H	127	100	42	8	11
IUI-D	52	70	69	79	77
Ægdonation	18	18	29	15	18

Resultater 2023

	Antal ægudtagninger OPU/Tø	Antal Ægoplægning ET	Antal Gravide (positiv hCG)	% gravide pr. Ægoplægning	Antal ongoing gravide	% ongoing gravide pr.ET
IVF/ICSI	575	216	119	55%	107	50%
FRYS	635	622	382	61%	290	47%
ÆGDONATION (Recipient behandlinger)	27	27	13	48%	8	30%

	Antal Inseminationer IUI	Antal Positive hCG	% positiv hCG pr. IUI	Antal on-Going gravide	Ongoing gravid Pr.IUI (%)
IUI-H	11	3	27%	3	27%
IUI-D	77	15	20%	11	14%

Forventet antal børn efter behandling i 2023

	Singleton	Flerfold	Antal forventet fødte børn
IUI	14	0	14
IVF/ICSI	100	6	106
FRYS	290	6	296
ÆGDONATION	8	0	8
TOTAL	412	12	424

Præsentation af afdelingens vigtigste forskningsaktivitet.

I 2023

Præsentation af afdelingens vigtigste forskningsaktivitet.

Klinikken har været involveret i mange projekter, de fleste forsker-initierede, men også projekter initieret af industrien. Vi har fået tilknyttet flere yngre forskere, der er godt i gang med forskellige opgaver og forsknings projekter. Der er mange projekter i gang og alle gør en kæmpe stor indsats og bidrager til deres gennemførelse.

Der har året igennem været stor deltagelse fra alle personalegrupper i både nationale og internationale møder og kongresser, både som deltagere og oplægsholdere. I forbindelse med den store europæiske fertilitetskongres ESHRE, der i 2023 blev afholdt i København, var der flot deltagelse fra klinikken med i alt 6 posters, 2 poster discussions samt 2 orals. Endelig var afdelingen repræsenteret ved i alt 6 chairs.

Igangværende forskningsprojekter

Forsker-initierede projekter: Forsker-initierede projekter

Optimizing serum progesterone level during luteal phase in hormonal replacement therapy frozen embryo transfer (HRF-FET) cycle. Alsbjerg B.

Food & Fertility. Et multicenterstudie (Skive; Horsens, Herlev og Aalborg), der kigger på kostens betydning for mænd og kvinders fertilitet. Humaidan P.

LUT-2. The correlation between luteal serum progesterone & live birth rate in IVF – a prospective cohort study
Alsbjerg B.'

Permanent ufrivillig barnløshed og surrogatmoderskab
Tanderup M.

DNA damage and subfertility in males – impact on ART outcome and non-pharmacological interventions to improve fertility and health. A double-blind, placebo-controlled multicenter trial on the effect of clindamycin and probiotic on the reproductive outcomes of IVF patients with abnormal vaginal microbiota.
Haahr T, supervised by Humaidan P.

Preparing and timing of the endometrium in modified natural cycle frozen-thawed embryo transfers – a randomized controlled multicenter trial.
Pinborg A, Humaidan P.

The microbiome of infertile couples and its effect on the reproductive outcomes – a prospective cohort study.
Haahr T, supervised by Humaidan P.

Evaluering af Effekten af et Multimodalt Livsstilsprogram på Sædkvalitet og DNA fragmentering hos mandlige Patienter der deltager I Fertilitetsbehandling (Exceed-studiet)

Karakterisering af æggeblærer fra autotransplanteret æggestokvæv. Peter Humaidan, Stine Gry Kristensen

De enkelte projekter er yderligere beskrevet på Fertilitetsklinikkens hjemmeside

Videnskabelige og populærvidenskabelige publikationer offentliggjorte i 2023

1. Unraveling the Impact of Sperm DNA Fragmentation on Reproductive Outcomes.
Nielsen JLM, Majzoub A, Esteves S, Humaidan P. Semin

Reprod Med. 2023 Dec 13. doi: 10.1055/s-0043-1777324. Online ahead of print.

PMID: 38092034

2. Correction to: The HERA (Hyper-response Risk Assessment) Delphi consensus for the management of hyper-responders in in vitro fertilization.

Feferkorn I, Santos-Ribeiro S, Ubaldi FM, Velasco JG, Ata B, Blockeel C, Conforti A, Esteves SC, Fatemi HM, Gianaroli L, Grynberg M, Humaidan P, Lainas GT, La Marca A, Craig LB, Lathi R, Norman RJ, Orvieto R, Paulson R, Pellicer A, Polyzos NP, Roque M, Sunkara SK, Tan SL, Urman B, Venetis C, Weissman A, Yarali H, Dahan MH.

J Assist Reprod Genet. 2023 Dec 11. doi: 10.1007/s10815-023-03003-7. Online ahead of print.

PMID: 38079078 No abstract available.

3. Early pregnancy bleeding after assisted reproductive technology: a systematic review and secondary data analysis from 320 patients undergoing hormone replacement therapy frozen embryo transfer.

Nielsen JM, Humaidan P, Jensen MB, Alsbjerg B.

Hum Reprod. 2023 Dec 4;38(12):2373-2381. doi: 10.1093/humrep/dead218.

PMID: 37897214

4. A model for predicting low progesterone levels on the day of embryo transfer in hormonally prepared vitrified-warmed embryo transfer cycles: A secondary analysis of a prospective cohort study.

Olgan S, Dirican EK, Ozsipahi AC, Sakinci M, Humaidan P.

J Obstet Gynaecol Res. 2023 Dec;49(12):2962-2968. doi: 10.1111/jog.15807. Epub 2023 Oct 9.

PMID: 37814426

5. Beyond the Umbrella: A Systematic Review of the Interventions for the Prevention of and Reduction in the Incidence and Severity of Ovarian Hyperstimulation Syndrome in Patients Who Undergo In Vitro Fertilization Treatments.

Palomba S, Costanzi F, Nelson SM, Besharat A, Caserta D, Humaidan P.

Int J Mol Sci. 2023 Sep 16;24(18):14185. doi: 10.3390/ijms241814185.

PMID: 37762488 Free PMC article. Review.

6. Rectal progesterone administration secures a high ongoing pregnancy rate in a personalized Hormone Replacement Therapy Frozen Embryo Transfer (HRT-FET) protocol: a prospective interventional study.

Alsbjerg B, Jensen MB, Povlsen BB, Elbaek HO, Laursen RJ, Kesmodel US, Humaidan P.

Hum Reprod. 2023 Nov 2;38(11):2221-2229. doi: 10.1093/humrep/dead185.

PMID: 37759346 Free PMC article.

7. Psychosocial wellbeing shortly after allocation to a freeze-all strategy compared with a fresh transfer strategy in women and men: a sub-study of a randomized controlled trial.

Pilegaard SP, Schmidt L, Stormlund S, Koert E, Bogstad JW, Prætorius L, Nielsen HS, la Cour Freiesleben N, Sopa N, Klajnbard A, Humaidan P, Bergh C, Englund ALM, Løssl K, Pinborg A.

Hum Reprod. 2023 Nov 2;38(11):2175-2186. doi: 10.1093/humrep/dead188.

PMID: 37742131 Clinical Trial.

8. The true natural cycle frozen embryo transfer - impact of patient and follicular phase characteristics on serum progesterone levels one day prior to warmed blastocyst transfer.

Mumusoglu S, Erden M, Ozbek IY, Ince O, Esteves SC, Humaidan P, Yarali H.

Reprod Biol Endocrinol. 2023 Sep 18;21(1):86. doi: 10.1186/s12958-023-01136-z.

PMID: 37723581 Free PMC article.

9. The HERA (Hyper-response Risk Assessment) Delphi consensus for the management of hyper-responders in in vitro fertilization.

Feferkorn I, Santos-Ribeiro S, Ubaldi FM, Velasco JG, Ata B, Blockeel C, Conforti A, Esteves SC, Fatemi HM, Gianaroli L, Grynberg M, Humaidan P, Lainas GT, La Marca A, Craig LB, Lathi R, Norman RJ, Orvieto R, Paulson R, Pellicer A, Polyzos NP, Roque M, Sunkara SK, Tan SL, Urman B, Venetis C, Weissman A, Yarali H, Dahan MH.

J Assist Reprod Genet. 2023 Nov;40(11):2681-2695. doi: 10.1007/s10815-023-02918-5. Epub 2023 Sep 15.

PMID: 37713144

10. Does luteal phase progesterone supplementation affect physical and psychosocial well-being among women undergoing modified natural cycle-FET? A sub-study of a randomized controlled trial.

Colombo C, Pistoljevic-Kristiansen N, Saupstad M, Bergenheim SJ, Spangmose AL, Klajnbard A, la Cour Freiesleben N, Løkkegaard EC, Englund AL, Husth M, Breth Knudsen U, Alsbjerg B, Prætorius L, Løssl K, Schmidt L, Pinborg A.

Hum Reprod. 2023 Oct 3;38(10):1970-1980. doi: 10.1093/humrep/dead171.

PMID: 37634089

11. Impact of the war in Ukraine and the COVID-19 pandemic on transnational surrogacy - a qualitative study of Danish infertile couples' experiences of being in 'exile'.

Tanderup M, Pande A, Schmidt L, Nielsen BB, Humaidan P, Kroløkke C.

Reprod Biomed Online. 2023 Oct;47(4):103258. doi: 10.1016/j.rbmo.2023.06.013. Epub 2023 Jun 24.

PMID: 37517186

12. Interventions to prevent or reduce the incidence and severity of ovarian hyperstimulation syndrome: a systematic umbrella review of the best clinical evidence.

Palomba S, Costanzi F, Nelson SM, Caserta D, Humaidan P.

Reprod Biol Endocrinol. 2023 Jul 21;21(1):67. doi: 10.1186/s12958-023-01113-6.

PMID: 37480081 Free PMC article. Review.

13. Food & Fertility Study: study protocol for a Danish multicentre prospective cohort study investigating the association between food intake and semen quality, pregnancy and birth outcomes in infertile women and men.

Buhl Borgstrøm MB, Ahrendt Bjerregaard A, Olsen SF, Gabrielsen A, Humaidan P, Kesmodel US.

BMJ Open. 2023 Jul 4;13(7): e068354. doi: 10.1136/bmjopen-2022-068354.

PMID: 37407049 Free PMC article.

14. Comparison of the efficacy of subcutaneous versus vaginal progesterone using a rescue protocol in vitrified blastocyst transfer cycles.

Yarali H, Mumusoglu S, Polat M, Erden M, Ozbek IY, Esteves SC, Humaidan P.

Reprod Biomed Online. 2023 Sep;47(3):103233. doi: 10.1016/j.rbmo.2023.05.005. Epub 2023 May 16.

PMID: 37400318

15. Genetic Variants of Gonadotropins and Their Receptors Could Influence Controlled Ovarian Stimulation: IVF Data from a Prospective Multicenter Study.

Alviggi C, Longobardi S, Papaleo E, Santi D, Alfano S, Vanni VS, Campitiello MR, De Rosa P, Strina I, Huhtaniemi I, Pursiheimo JP, D'Hooghe T, Humaidan P, Conforti A.

Genes (Basel). 2023 Jun 15;14(6):1269. doi: 10.3390/genes14061269.

PMID: 37372449 Free PMC article.

16. Local intraendometrial estrogen biosynthesis leading to progesterone resistance impacts implantation in adenomyosis and endometriosis.

Humaidan P, Garcia Velasco JA, Cozzolino M.

Fertil Steril. 2023 Oct;120(4):927. doi: 10.1016/j.fertnstert.2023.06.004. Epub 2023 Jun 7.

PMID: 37295742 No abstract available.

17. Caution is needed when communicating analyses based on an apple to orange comparison.

Alsbjerg B, Humaidan P.

Hum Reprod Open. 2023 May 15;2023(3): hoad016. doi: 10.1093/hropen/hoad016. eCollection 2023.

PMID: 37273767 Free PMC article. No abstract available.

18. Follicle-Stimulating Hormone Biological Products: Does Potency Predict Clinical Efficacy?

Lispi M, Humaidan P, Bousfield GR, D'Hooghe T, Ulloa-Aguirre A.

Int J Mol Sci. 2023 May 19;24(10):9020. doi: 10.3390/ijms24109020.

PMID: 37240364 Free PMC article. Review.

19. GnRHa trigger-the story of the ugly duckling.

Humaidan P, Haahr T.

F S Rep. 2023 Feb 28;4(2 Suppl):15-19. doi: 10.1016/j.xfre.2023.02.011. eCollection 2023 Jun.

PMID: 37223771 Free PMC article.

20. Towards infertility care on equal terms: a prime time for male infertility.

Esteves SC, Humaidan P.

Reprod Biomed Online. 2023 Jul;47(1):11-14. doi: 10.1016/j.rbmo.2023.04.003. Epub 2023 Apr 11.

PMID: 37202319

21. Editorial: GnRH agonist triggering of final oocyte maturation: Improving safety without compromising success.

Awwad J, Garcia-Velasco J, Humaidan P.

Front Endocrinol (Lausanne). 2023 Mar 16;14:1171974. doi: 10.3389/fendo.2023.1171974. eCollection 2023.

PMID: 37008901 Free PMC article. No abstract available.

22. The HERA (Hyper-response Risk Assessment) Delphi consensus definition of hyper-responders for in-vitro fertilization.

Feferkorn I, Ata B, Esteves SC, La Marca A, Paulson R, Blockeel C, Conforti A, Fatemi HM, Humaidan P, Lainas GT, Mol BW, Norman RJ, Orvieto R, Polyzos NP, Santos-Ribeiro S, Sunkara SK, Tan SL, Ubaldi FM, Urman B, Velasco JG, Weissman A, Yarali H, Dahan MH.

J Assist Reprod Genet. 2023 May;40(5):1071-1081. doi: 10.1007/s10815-023-02757-4. Epub 2023 Mar 18.

PMID: 36933094

23. A drop in serum progesterone from oocyte pick-up +3 days to +5 days in fresh blastocyst transfer, using hCG-trigger and standard luteal support, is associated with lower ongoing pregnancy rates.

Uyanik E, Mumusoglu S, Polat M, Yarali Ozbek I, Esteves SC, Humaidan P, Yarali H.

Hum Reprod. 2023 Feb 1;38(2):225-236. doi: 10.1093/humrep/deac255.

PMID: 36478179

24. Low-grade inflammation is negatively associated with live birth in women undergoing IVF.

Vexø LE, Stormlund S, Landersøe SK, Jørgensen HL, Humaidan P, Bergh C, Englund ALM, Klajnbard A, Bogstad JW, Freiesleben NC, Zedeler A, Prætorius L, Andersen AN, Løssl K, Pinborg A, Nielsen HS.

Reprod Biomed Online. 2023 Feb;46(2):302-311. doi: 10.1016/j.rbmo.2022.10.004. Epub 2022 Oct 17.

PMID: 36446681 Clinical Trial.

25. Endometriosis patients benefit from high serum progesterone in hormone replacement therapy-frozen embryo transfer cycles: a cohort study.

Alsbjerg B, Kesmodel US, Humaidan P.

Reprod Biomed Online. 2023 Jan;46(1):92-98. doi: 10.1016/j.rbmo.2022.09.005. Epub 2022 Sep 7.

PMID: 36216661

26. Neuromuscular Blockade Monitoring: Having It but Knowing When Not to Trust It.

Salvador S, Frada R, Campos M, Esteves S. *Cureus*. 2023 Sep 18;15(9):e45438. doi: 10.7759/cureus.45438. eCollection 2023 Sep. PMID: 37859899 Free PMC article.

27. Improving standard practices in studies using results from basic human semen examination.

Björndahl L, Esteves SC, Ferlin A, Jørgensen N, O'Flaherty C. *Andrology*. 2023 Oct;11(7):1225-1231. doi: 10.1111/andr.13504. PMID: 37740519

28. Total fertilization failure after ICSI: insights into pathophysiology, diagnosis, and management through artificial oocyte activation.

Campos G, Sciorio R, Esteves SC. *Hum Reprod Update*. 2023 Jul 5;29(4):369-394. doi: 10.1093/humupd/dmad007. PMID: 36977357 Review.

29. Exploring the potential impact of human papillomavirus on infertility and assisted reproductive technology outcomes.

Tramontano L, Sciorio R, Bellaminutti S, Esteves SC, Petignat P. *Reprod Biol.* 2023 Jun;23(2):100753. doi: 10.1016/j.repbio.2023.100753. Epub 2023 Mar 6. PMID: 36889139 Review.

30. Surgically retrieved spermatozoa for ICSI cycles in non-azoospermic males with high sperm DNA fragmentation in semen.

Esteves SC, Coimbra I, Hallak J. *Andrology.* 2023 Nov;11(8):1613-1634. doi: 10.1111/andr.13405. Epub 2023 Feb 17. PMID: 36734283 Review.

31. Male infertility and gonadotropin treatment: What can we learn from real-world data?

Esteves SC, Achermann APP, Simoni M, Santi D, Casarini L. *Best Pract Res Clin Obstet Gynaecol.* 2023 Feb;86:102310. doi: 10.1016/j.bpobgyn.2022.102310. Epub 2022 Dec 29. PMID: 36682942 Review.

32. Treatment algorithms for high responders: What we can learn from randomized controlled trials, real-world data and models.

Drakopoulos P, Khalaf Y, Esteves SC, Polyzos NP, Sunkara SK, Shapiro D, Rizk B, Ye H, Costello M, Koloda Y, Salle B, Lispi M, D'Hooghe T, La Marca A. *Best Pract Res Clin Obstet Gynaecol.* 2023 Feb;86:102301. doi: 10.1016/j.bpobgyn.2022.102301. Epub 2022 Dec 27.

33. Risk of genetic and epigenetic alteration in children conceived following ART: Is it time to return to nature whenever possible?

Sciorio R, Tramontano L, Rapalini E, Bellaminutti S, Bulletti FM, D'Amato A, Manna C, Palagiano A, Bulletti C, Esteves SC. *Clin Genet.* 2023 Feb;103(2):133-145. doi: 10.1111/cge.14232. Epub 2022 Oct 1. PMID: 36109352 Review.

34. The adenomyosis/endometriosis IVF patient-call for clinical focus

Cozzolino, M.; Alsbjerg, B; Pellicier, A; Velasco, J.; Humaidan, P.

RBM 103737, Nov 23, DOI: <https://doi.org/10.1016/j.rbmo.2023.103737>

35. Lactobacilli and Their Probiotic Effects in the Vagina of Reproductive Age Women.

Pendharkar S, Skafte-Holm A, Simsek G, Haahr T. *Microorganisms*. 2023 Mar 1;11(3):636. doi: 10.3390/microorganisms11030636.PMID: 36985210 Free PMC article. Review.