

”Ny CT-skanningsmetode viser hjertemassage indefra”

1. RING OP



2. TRYK NED



3. GIV STØD

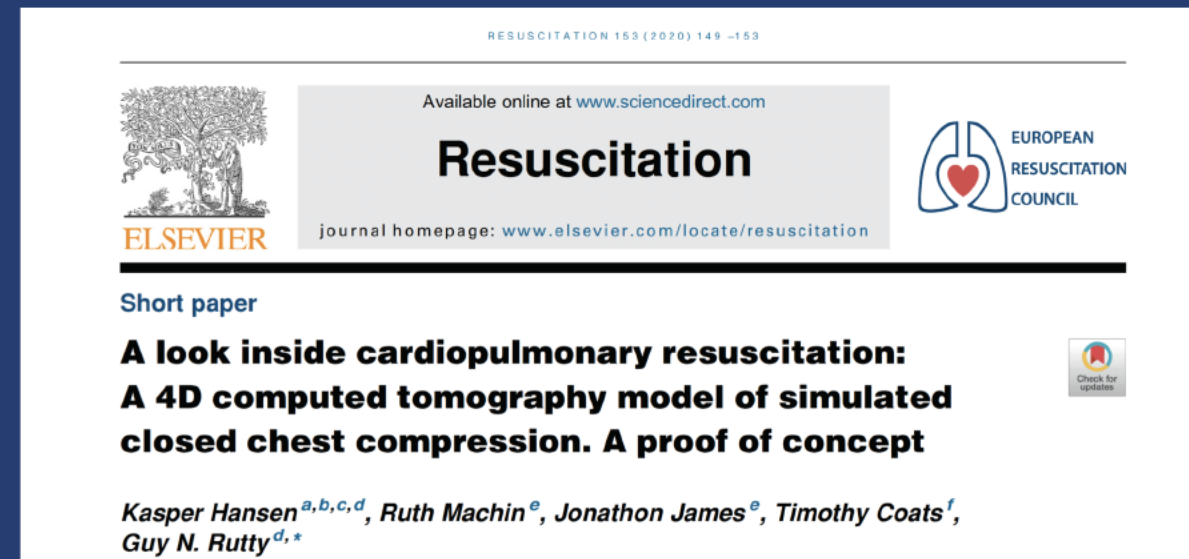


(fra: <https://genoplivning.dk>)



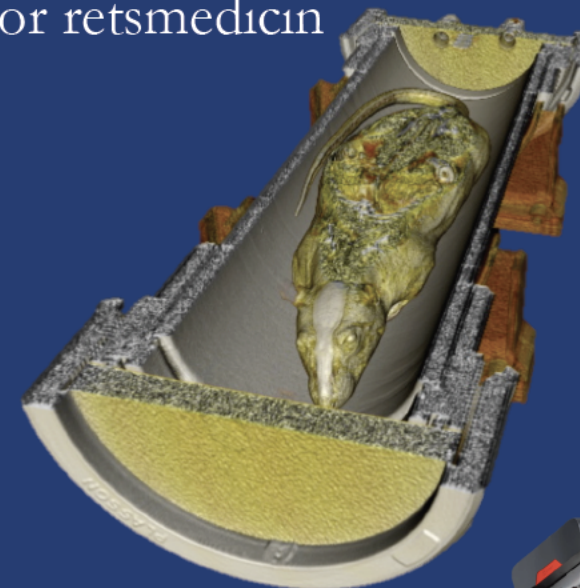
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www.forensic.au.dk

Honorary Visiting Fellow (Sep 2019 ->)
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University of Leicester
Leicester Royal Infirmary
United Kingdom

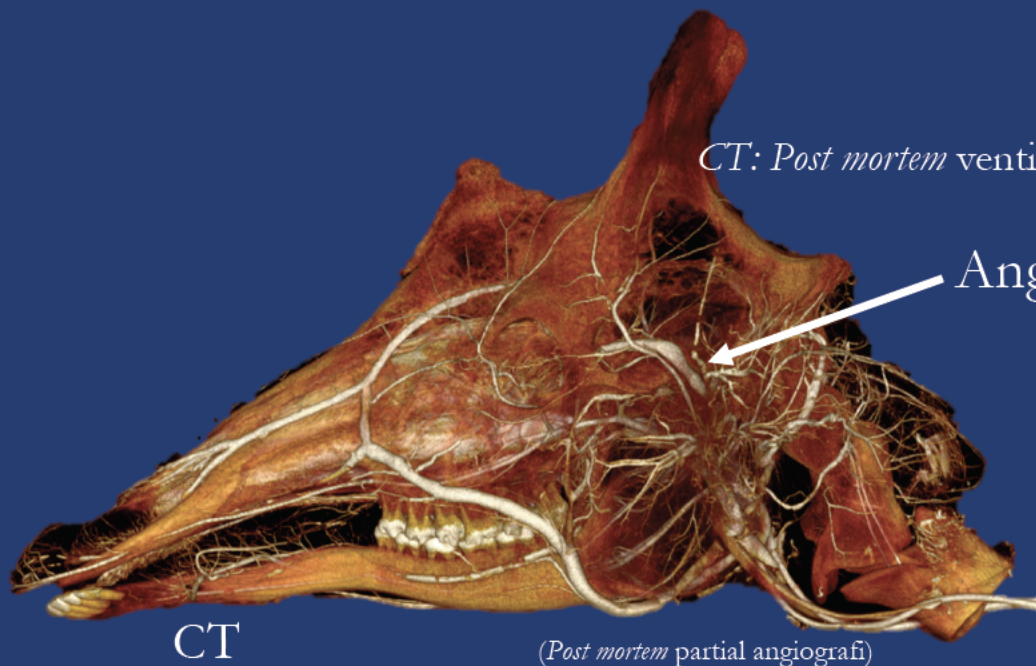


Resuscitation 153:149–153 . <https://doi.org/10.1016/j.resuscitation.2020.05.037>

2011: M.Sc. in Biology (Sektion for Zoofysiologi)
2016: Ph.D. i Medicin (Institut for Klinisk Medicin)
2016-18: Postdoc, Zoophysiology (2016-18)
2018 -> Adjunkt - "Forensic Imaging" (2018-)



3D-print i
retsmedicin

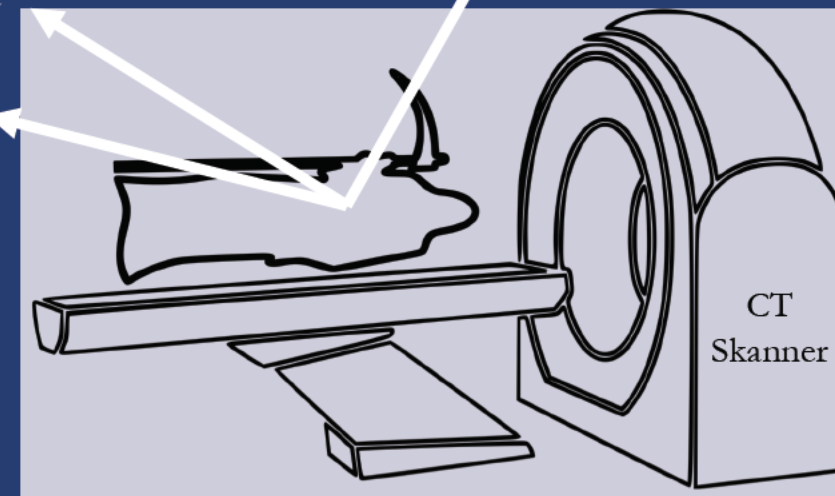


CT: Post mortem ventilleret lunge

Angiografi

CT

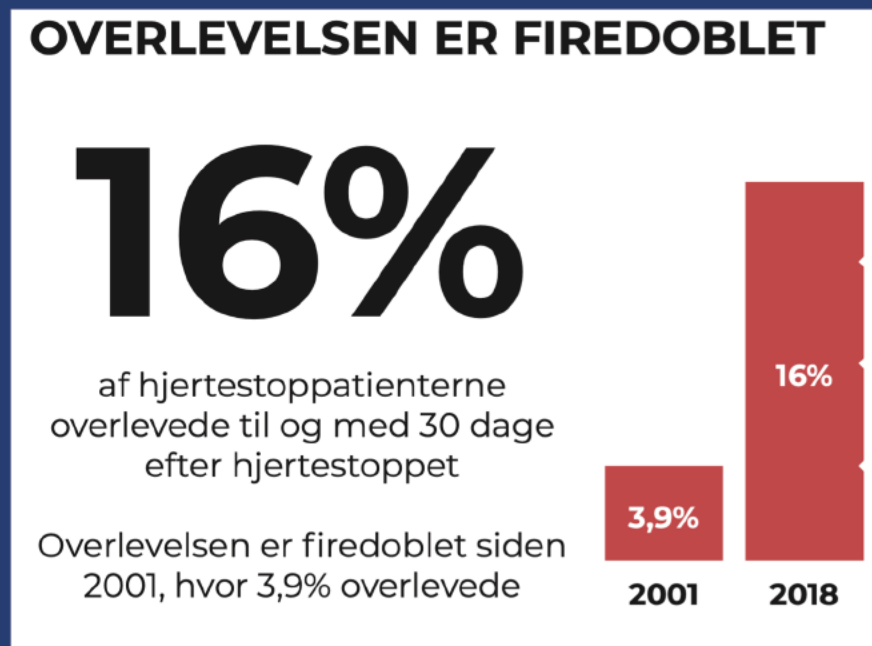
(Post mortem partial angiografi)



CT
Skanner

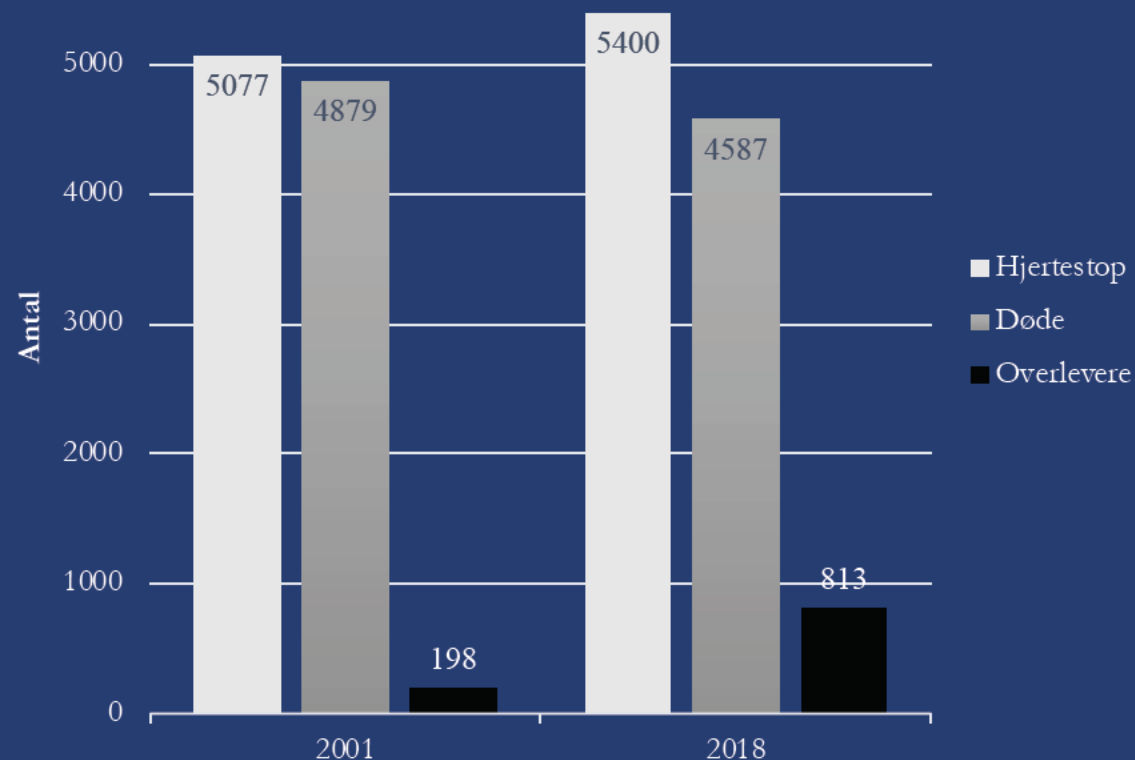
-Vi bliver bedre til at behandle hjertestop...

...men der er plads til MEGEN forbedring!



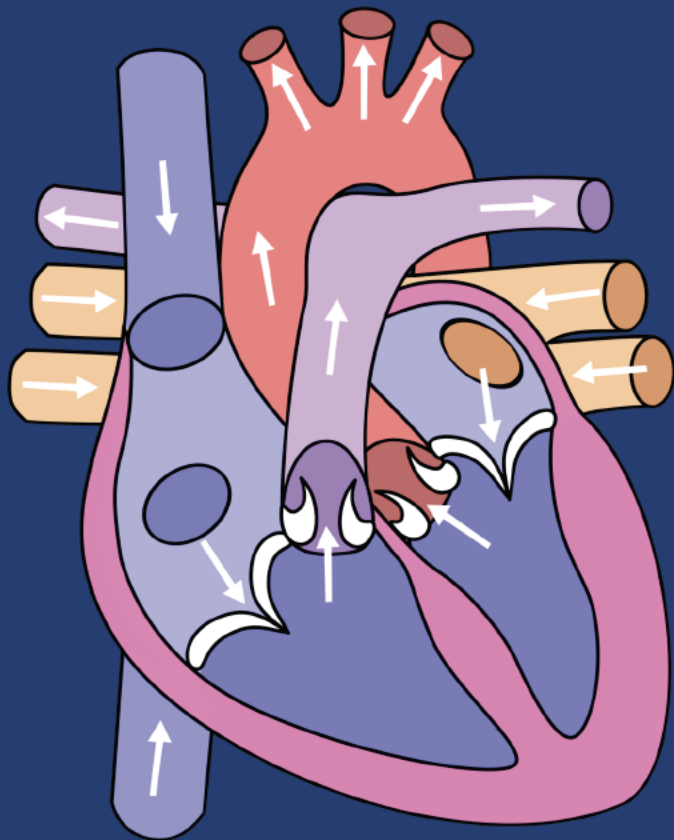
(Alt data tilpasset fra <https://hjertestopregister.dk/> (d.1/11 2020))

Årlige antal hjertestop og overlevelse i 2001 og 2018



*813 overlevede hjertestop i 2018 (svarende til 15% af 5400)

Hvordan virker hjertemassage?



Formål med hjertemassage er
blodtilførsel til vitale organer

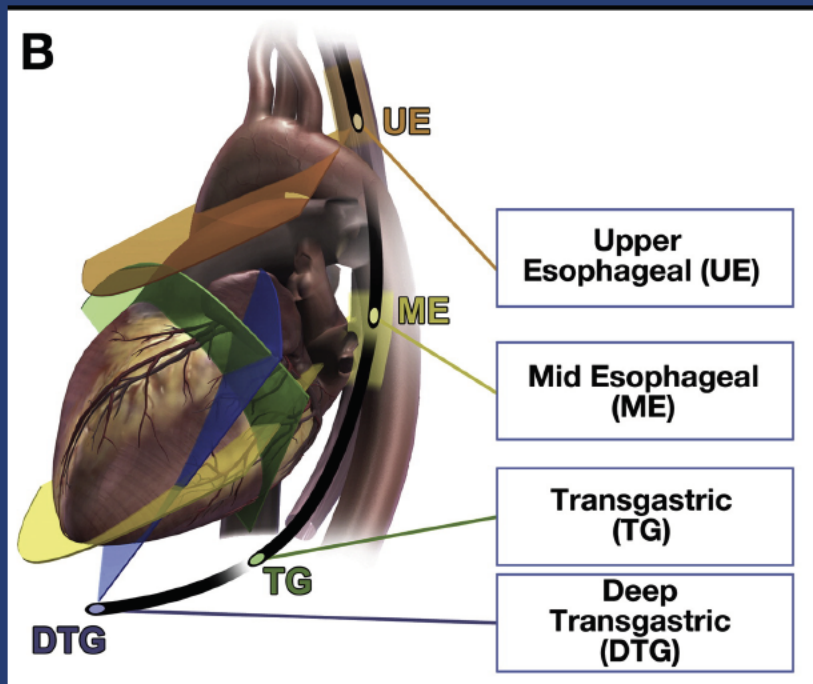
To hovedteorier:

Hjerte-pumpen
Thorax-pumpen

Hjertet skaber trykgradienter!

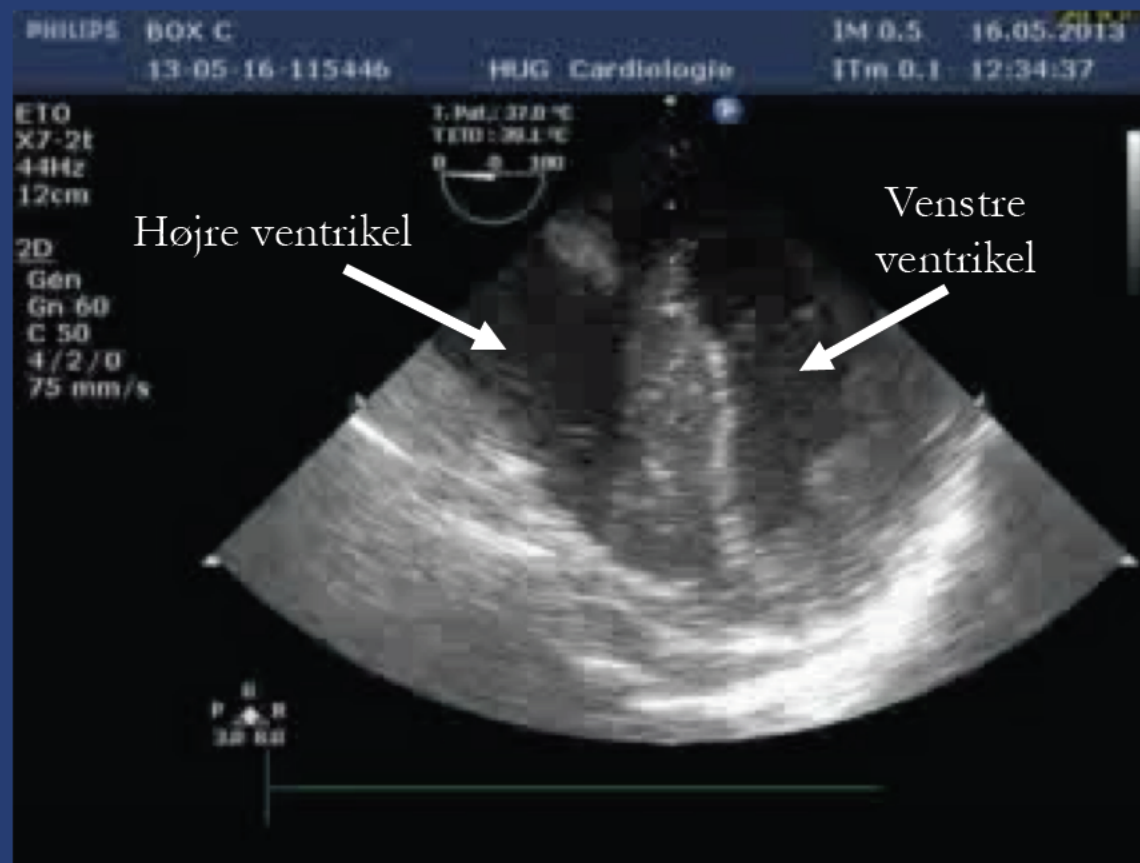
[https://en.wikipedia.org/wiki/File:Diagram_of_the_human_heart_\(cropped\).svg](https://en.wikipedia.org/wiki/File:Diagram_of_the_human_heart_(cropped).svg)

Trykmåling
CO₂ (i udåndingsluft)
Flowmåling
Röntgen
Ultralyd
CT
MRI
...

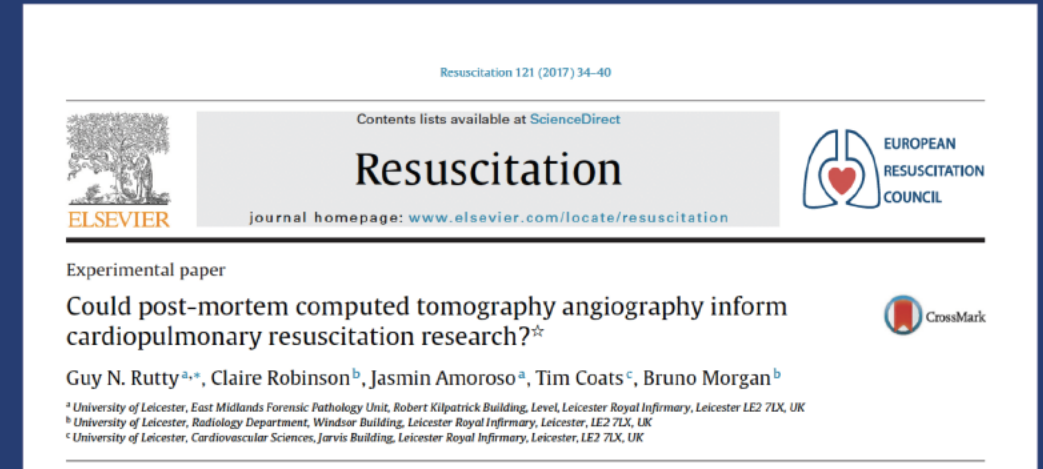
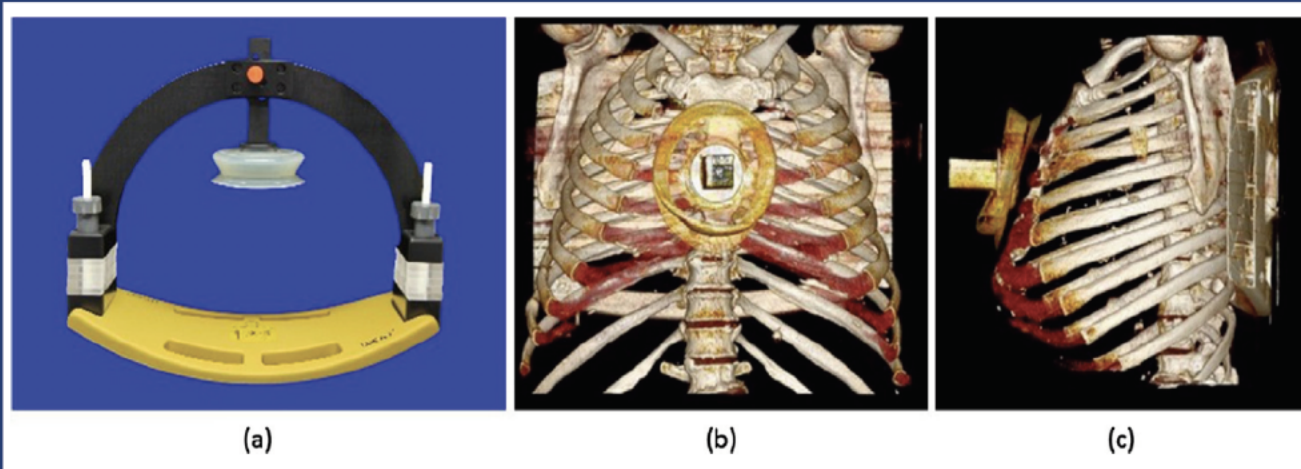


Fra: Hahn et al. (2013). Journal of the American Society of Echocardiography 26:921–96.
<https://doi.org/10.1016/j.echo.2013.07.009>

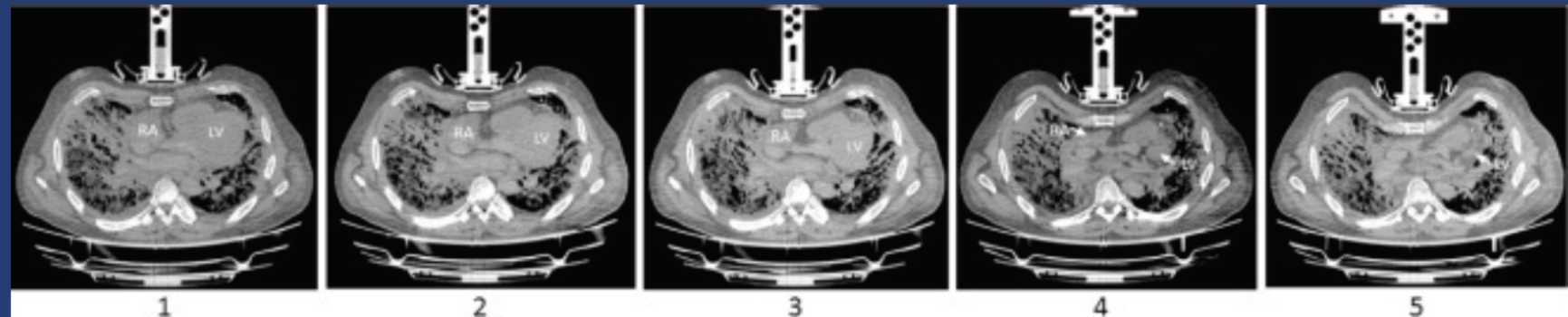
Automatisk hjertemassage (LUCAS 2)



Fra: Giraud et al. (2015). Annals of Emergency Medicine 65:23–26.
<https://doi.org/10.1016/j.annemergmed.2014.01.020>



Professor Guy Ratty, MBE
Chief Forensic Pathologist
East Midlands Forensic Pathology Unit
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EMICS Pre Hospital Doctor



Kompressions dybde (cm)

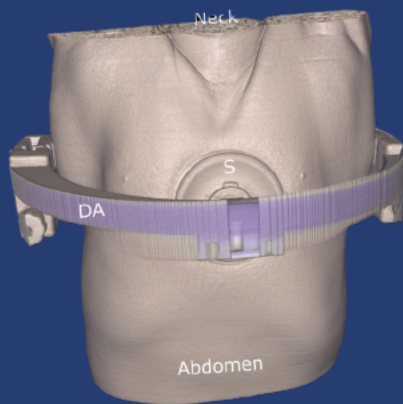
Ratty et al. (2017). Resuscitation 121:34-40

Hvordan vore ny metode virker

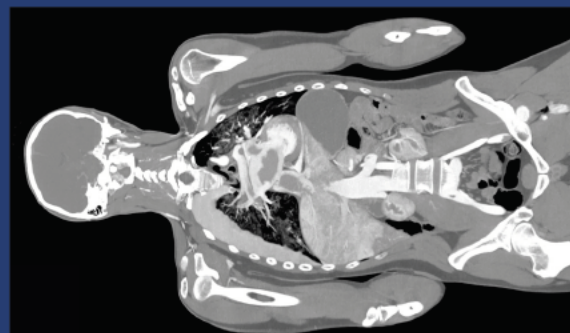
Trin 1:
CT-kontrast



Trin 2:
Placering af "statisk
kompressions-apparat"



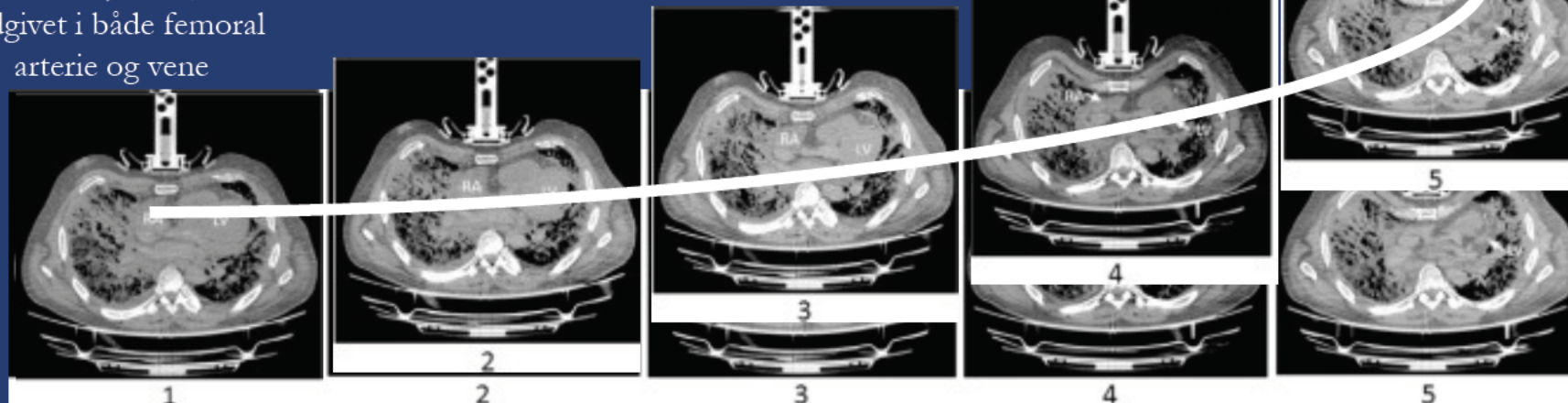
Trin 3: CT-skanninger
0-1-2-3-2-1-0 cm
0-1-2-3-4-5-4-3-2-1-0 cm
0-1-2-3-4-5-6-7-8-7-6-5-4-3-2-1-0 cm



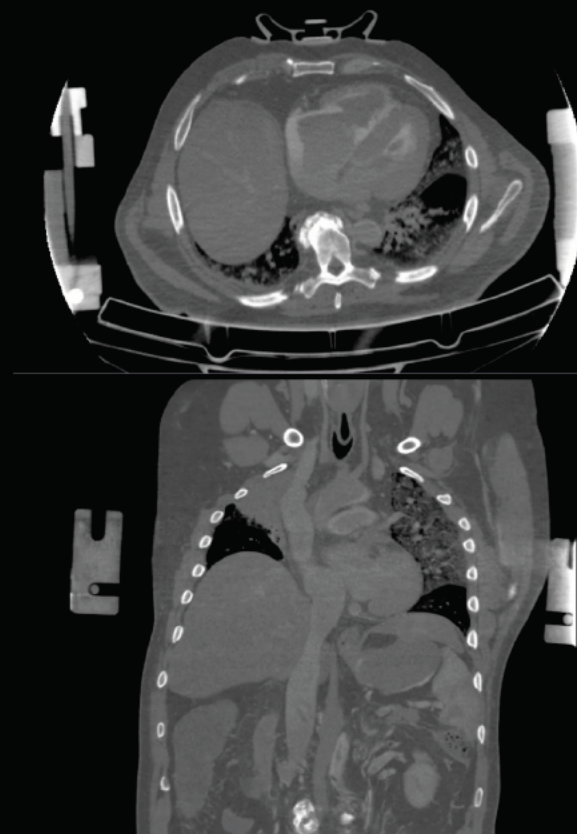
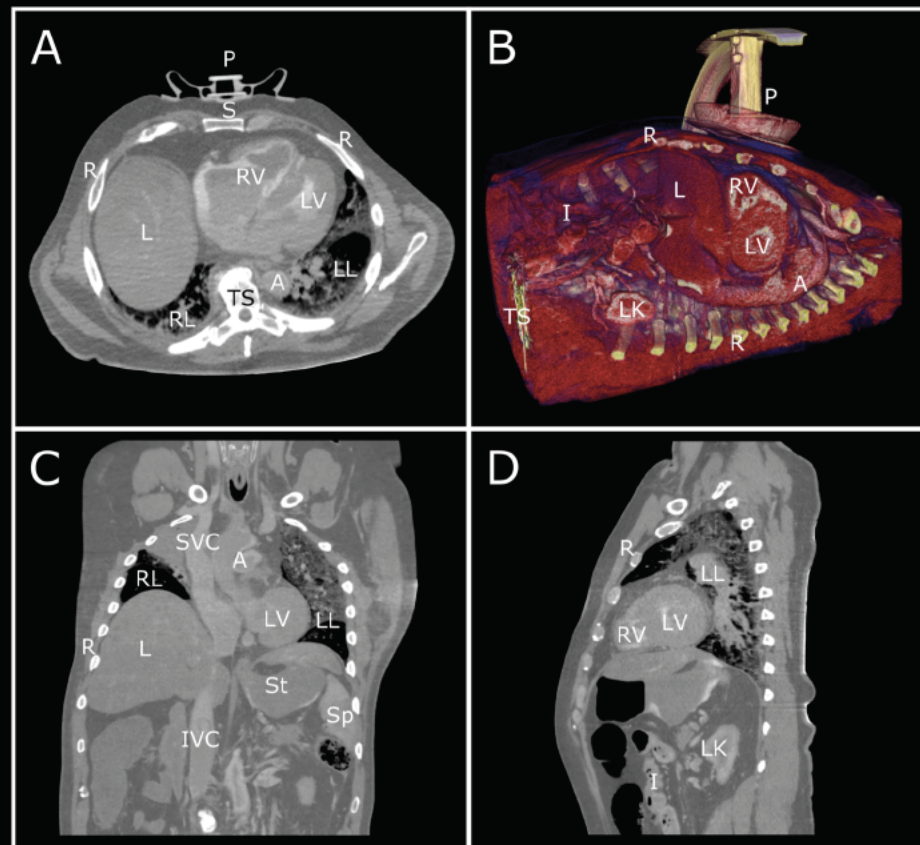
Trin 4:
Efterbehandling (Stop-Motion)



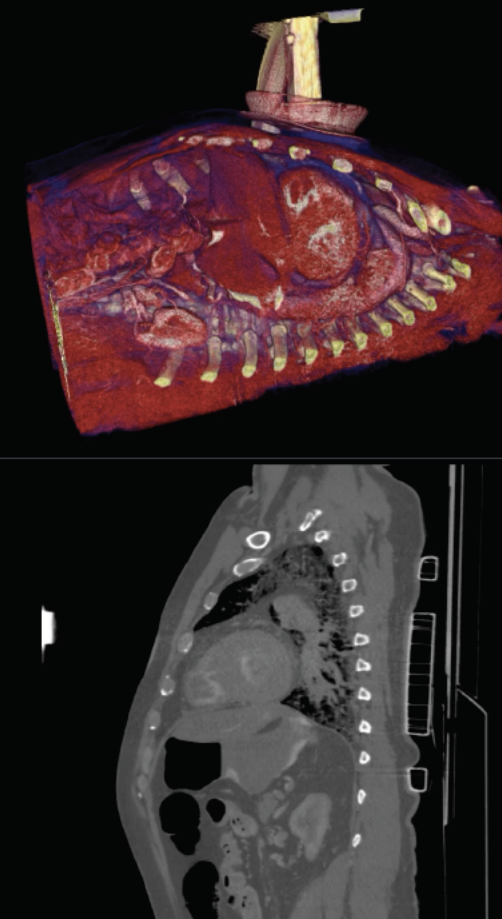
(10% Urografin):
800 mL, 3 mL/s
Indgivet i både femoral
arterie og vene



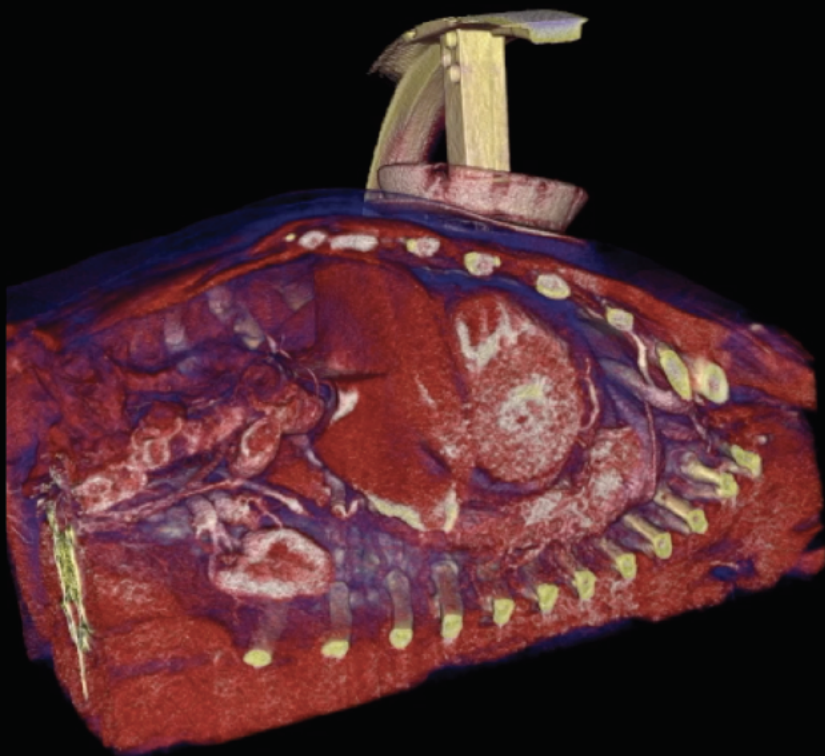
Kompressions dybde (cm)



0-5-0 cm



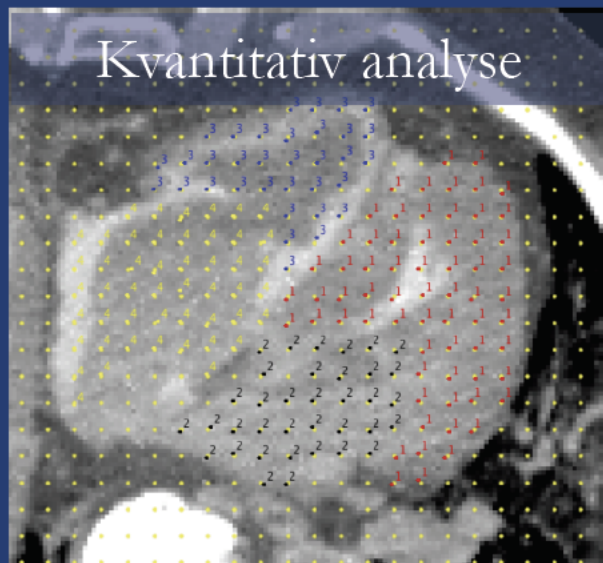
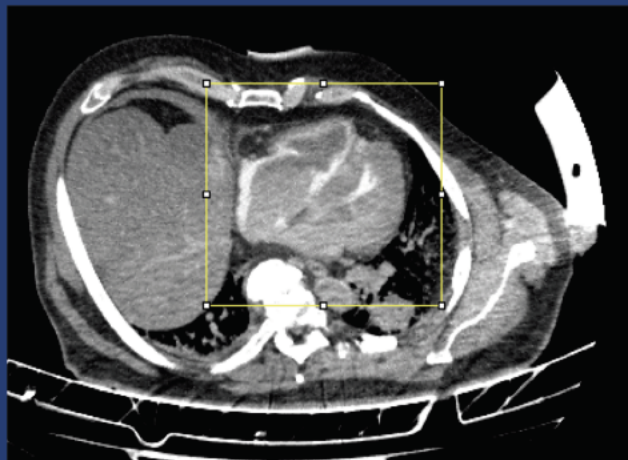
0-8-0 cm



Skader (n=1)

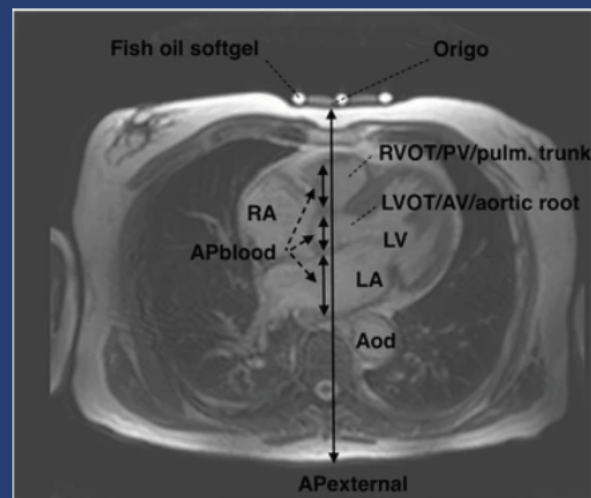
Tryk-dybde (cm)	Første observation af skades- placering (Side _{Rib-nr.})
1-5	N/A
6	R _{4,5} L ₅
7	R ₃ L _{3,4}
8	R ₂ L ₂ Sternum

CT-Angiografi

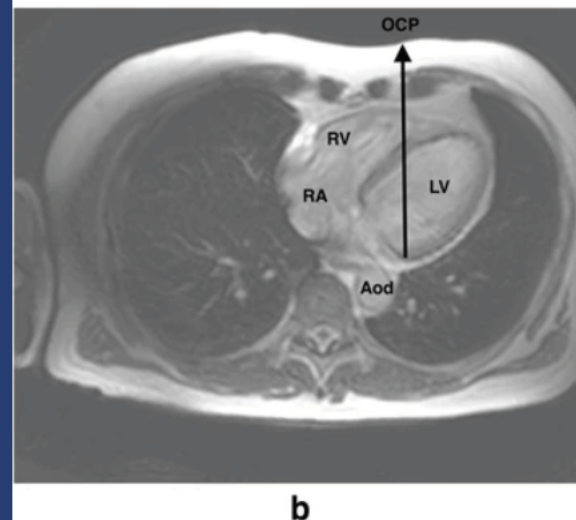


Hansen et al. (unpublished)

MRI



a



b

Nestaas et al. (2016). Scand J Trauma Resusc Emerg Med 24:54.
<https://doi.org/10.1186/s13049-016-0245-0>

Vi kan med vores nye CT-skanningsmetode, som viser hjertemassage indefra, påbegynde arbejdet med at skabe en bedre direkte forståelse de(n) fysiologiske mekanisme(r) ved hjertemassage

Undersøge/forbedre effekt af forskellige tillægsbehandlinger

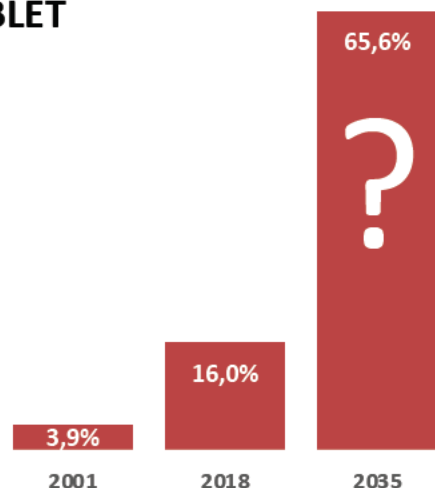
Vores grundforskning kan potentielt være med til at forbedre overlevelse ved genoplivning

OVERLEVELSEN ER FIREDOBLET

16%

af hjertestoppatienterne overlevede til og med 30 dage efter hjertestoppet

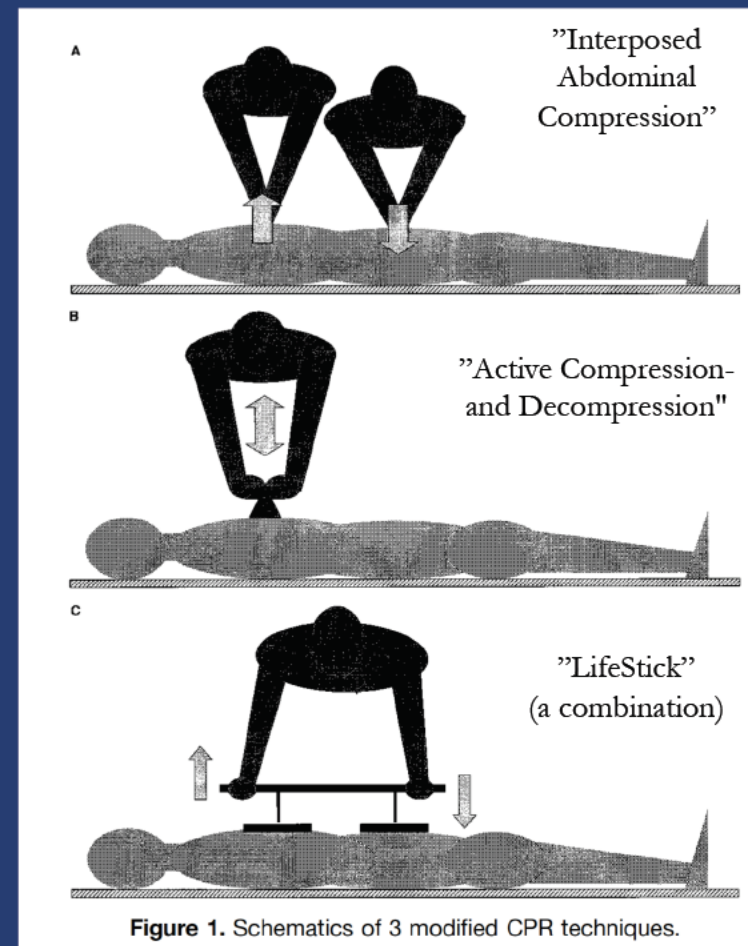
Overlevelsen er firedoblet siden 2001, hvor 3,9% overlevede



(Data fra <https://hjertestopregister.dk/> (d.1/11 2020))

(OBS: 2035 data er hypotetisk data)

”Tillægsbehandlinger”



Babbs CF (1999). Circulation 100:2146–2152.
<https://doi.org/10.1161/01.CIR.100.21.2146>

? Spørgsmål ?

BRUG VIDEOERNE!

(Open Source=gratis)

Hansen K, Machin R, James J, Coats T, Ruttly GN (2020) A look inside cardiopulmonary resuscitation: A 4D computed tomography model of simulated closed chest compression. A proof of concept. Resuscitation 153:149–153.
<https://doi.org/10.1016/j.resuscitation.2020.05.037>

eller søg noget i stil med:
”4DCT CPR, Hansen”

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