



## Clinical trial results:

**Preliminary effect and safety of physiotherapy with strength training and protein-dense nutritional supplement in combination with anabolic steroids in cross-continuum rehabilitation of patients with hip fracture - a randomized controlled pilot trial. (The HIP-SAP trial)**

### Summary

EudraCT number	2017-001543-13
Trial protocol	DK
Global end of trial date	03 June 2020

### Results information

Result version number	v1 (current)
This version publication date	03 April 2021
First version publication date	03 April 2021

### Trial information

#### Trial identification

Sponsor protocol code	HIP-SAP
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#### Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT03545347
WHO universal trial number (UTN)	-

Notes:

### Sponsors

Sponsor organisation name	Copenhagen University Hospital Amager-Hvidovre
Sponsor organisation address	Kettegård alle 30, Hvidovre, Denmark, 2650
Public contact	Morten Tange Kristensen, Amager-Hvidovre Hospital, 0045 38626191, morten.tange.kristensen@regionh.dk
Scientific contact	Morten Tange Kristensen, Amager-Hvidovre Hospital, 0045 38626191, morten.tange.kristensen@regionh.dk

Notes:

### Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

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**Results analysis stage**

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Analysis stage	Final
Date of interim/final analysis	01 October 2020
Is this the analysis of the primary completion data?	Yes
Primary completion date	03 June 2020
Global end of trial reached?	Yes
Global end of trial date	03 June 2020
Was the trial ended prematurely?	Yes

Notes:

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**General information about the trial**

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Main objective of the trial:

The purpose of this placebo controlled pilot trial is to determine the preliminary effect and safety of a 12 week multimodal intervention initiated during admission in the acute ward after hip fracture surgery. The intervention under investigation is a combination therapy consisting of physiotherapy (functional, balance and strength training), protein- dense nutritional supplement and nandrolone decanoate (Deca-Durabolin) supplement on improving the fractured limb knee-extension muscle strength at a 14 week follow-up.

Protection of trial subjects:

The trial is conducted in accordance with the Helsinki declaration and have been approved by the Capital Region's Research Ethics Committee (H-18004495)

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	14 May 2018
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

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**Population of trial subjects**

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**Subjects enrolled per country**

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Country: Number of subjects enrolled	Denmark: 23
Worldwide total number of subjects	23
EEA total number of subjects	23

Notes:

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**Subjects enrolled per age group**

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In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0
Adolescents (12-17 years)	0
Adults (18-64 years)	1
From 65 to 84 years	20

85 years and over	2
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## Subject disposition

### Recruitment

Recruitment details:

Screening and inclusion from 6th of June 2018 until 24th February 2020.

### Pre-assignment

Screening details:

717 patients were screened

### Period 1

Period 1 title	"overall trial" (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Subject, Investigator, Monitor, Data analyst, Carer, Assessor

### Arms

Are arms mutually exclusive?	Yes
<b>Arm title</b>	Nandrolone

Arm description:

Nandrolone decanoate (Deca-Durabolin 50mg/ml)

Arm type	Experimental
Investigational medicinal product name	Deca-Durabolin
Investigational medicinal product code	PR1in
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

5 injection over 12 weeks (3 weeks intervals). Women received 50 mg per dose; men with total testosterone  $\geq 11$  nmol/l received 100 mg, and men with total testosterone  $< 11$  nmol/l received a dose of 200 mg per dose.

<b>Arm title</b>	Placebo
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Arm description:

Saline injection

Arm type	Placebo
Investigational medicinal product name	0.9% Sodium Chloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solvent for parenteral use
Routes of administration	Intramuscular use

Dosage and administration details:

50 mg intramuscular injected

<b>Number of subjects in period 1</b>	Nandrolone	Placebo
Started	12	11
Completed	11	10
Not completed	1	1
Consent withdrawn by subject	1	1

## Baseline characteristics

### Reporting groups

Reporting group title	Nandrolone
Reporting group description:	
Nandrolone decanoate (Deca-Durabolin 50mg/ml)	
Reporting group title	Placebo
Reporting group description:	
Saline injection	

Reporting group values	Nandrolone	Placebo	Total
Number of subjects	12	11	23
Age categorical Units: Subjects			
In utero			0
Preterm newborn infants (gestational age < 37 wks)			0
Newborns (0-27 days)			0
Infants and toddlers (28 days-23 months)			0
Children (2-11 years)			0
Adolescents (12-17 years)			0
Adults (18-64 years)			0
From 65-84 years			0
85 years and over			0
Age continuous Units: years			
arithmetic mean	73.5	73.4	
standard deviation	± 5.9	± 7.7	-
Gender categorical Units: Subjects			
Female	9	9	18
Male	3	2	5
Fracture type Units: Subjects			
Intracapsular	9	7	16
Extracapsular	3	4	7
Type of syrgery Units: Subjects			
2 pins	0	1	1
Hemi/total arthroplasty	8	6	14
Dynamic hip screw	1	1	2
Intramedular hip screw	3	3	6
Walking aid Units: Subjects			
Indoor walking aid	0	1	1
Outdoor walking aid	2	2	4
No walking aid	10	8	18
Discharged home			

Units: Subjects			
Discharged home	11	10	21
discharged to rehabilitation	1	1	2
New Mobility Score			
Units: points			
arithmetic mean	8.6	8.5	
standard deviation	$\pm 0.8$	$\pm 1.0$	-
Length of stay			
Units: days			
median	8	8	
inter-quartile range (Q1-Q3)	6 to 9	7 to 9	-
American Society of anesthesiologist GRADE (ASA)			
Units: point			
arithmetic mean	2.1	1.9	
standard deviation	$\pm 0.7$	$\pm 0.3$	-

## End points

### End points reporting groups

Reporting group title	Nandrolone
Reporting group description:	
Nandrolone decanoate (Deca-Durabolin 50mg/ml)	
Reporting group title	Placebo
Reporting group description:	
Saline injection	

### Primary: Knee extension strength, non fractured leg

End point title	Knee extension strength, non fractured leg
End point description:	
End point type	Primary
End point timeframe:	
Baseline to 14 weeks follow-up	

End point values	Nandrolone	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Nm/kg				
arithmetic mean (confidence interval 95%)	0.28 (0.20 to 0.37)	0.13 (-0.07 to 0.32)		

### Statistical analyses

Statistical analysis title	within group difference
Comparison groups	Nandrolone v Placebo
Number of subjects included in analysis	21
Analysis specification	Pre-specified
Analysis type	other
P-value	< 0.05
Method	t-test, 2-sided

### Primary: Knee extension strength fractured leg

End point title	Knee extension strength fractured leg
End point description:	
within group difference	
End point type	Primary



End point timeframe:  
baseline to 14-week follow-up

<b>End point values</b>	Nandrolone	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Nm/kg				
arithmetic mean (confidence interval 95%)	0.61 (0.34 to 0.88)	0.50 (0.21 to 0.79)		

### Statistical analyses

<b>Statistical analysis title</b>	Within-group differences
Comparison groups	Nandrolone v Placebo
Number of subjects included in analysis	21
Analysis specification	Pre-specified
Analysis type	other
P-value	< 0.05
Method	t-test, 2-sided

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

baseline until 16 weeks

Assessment type	Systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	20
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### Reporting groups

Reporting group title	Nandrolone
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Reporting group description: -

Reporting group title	Placebo
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Reporting group description: -

Serious adverse events	Nandrolone	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	3 / 12 (25.00%)	0 / 11 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Injury, poisoning and procedural complications			
Post procedural infection			
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Surgical and medical procedures			
Hip related pain	Additional description: 24-hour hospital stay because of hip fracture-related pain, ex-ray showed slight compression of the fracture site as expected according to type of ostesynthesis.		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Cardiac disorders			
Coronary artery stenosis	Additional description: preexisting coronary stenosis, treated with stent		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 0 %

<b>Non-serious adverse events</b>	Nandrolone	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	12 / 12 (100.00%)	11 / 11 (100.00%)	
Injury, poisoning and procedural complications			
Falls			
subjects affected / exposed	0 / 12 (0.00%)	3 / 11 (27.27%)	
occurrences (all)	0	3	
Cardiac disorders			
Syncope	Additional description: Short fainting related mobilization		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Blood pressure abnormal	Additional description: slight increase		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Surgical and medical procedures			
click sounds osteosynthesis material	Additional description: Stopped after 2 weeks		
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
delayed fracture healing			
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
General disorders and administration site conditions			
edema	Additional description: primarily operated leg		
subjects affected / exposed	3 / 12 (25.00%)	0 / 11 (0.00%)	
occurrences (all)	3	0	
Pain	Additional description: Pain related to surgical procedure		
subjects affected / exposed	0 / 12 (0.00%)	5 / 11 (45.45%)	
occurrences (all)	0	5	
Dizziness			
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Weight decreased			
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	

rash			
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
Gastrointestinal disorders			
Constipation			
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Nausea			
subjects affected / exposed	1 / 12 (8.33%)	3 / 11 (27.27%)	
occurrences (all)	1	3	
Ulcer	Additional description: history of previous ulcer		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Reproductive system and breast disorders			
prostate-specific antigen increased	Additional description: slight increase, 3 weeks after normalized		
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Hepatobiliary disorders			
Liver parameters increased			
subjects affected / exposed	1 / 12 (8.33%)	2 / 11 (18.18%)	
occurrences (all)	1	2	
Skin and subcutaneous tissue disorders			
Quinckes edema	Additional description: One episode, a pre-existing condition, and well treated.		
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
chronic leg ulcer			
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
pressure ulcer			
subjects affected / exposed	1 / 12 (8.33%)	0 / 11 (0.00%)	
occurrences (all)	1	0	
Renal and urinary disorders			
Greenish urine			
subjects affected / exposed	0 / 12 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
Urinary tract infection			

subjects affected / exposed occurrences (all)	1 / 12 (8.33%) 1	1 / 11 (9.09%) 1	
Renal impairment	Additional description: preexisting condition		
subjects affected / exposed occurrences (all)	0 / 12 (0.00%) 0	1 / 11 (9.09%) 1	
Psychiatric disorders			
Depressed mood	Additional description: Known condition prior to enrollment		
subjects affected / exposed occurrences (all)	0 / 12 (0.00%) 0	1 / 11 (9.09%) 1	
Endocrine disorders			
cholesterol parameters increased			
subjects affected / exposed occurrences (all)	3 / 12 (25.00%) 3	2 / 11 (18.18%) 2	
increased sweating			
subjects affected / exposed occurrences (all)	1 / 12 (8.33%) 1	1 / 11 (9.09%) 1	
Hirsutism	Additional description: preexisting facial hirsutism (upper lip) ferriman-gallwey score 1 increased to slight at chin, still score 1.		
subjects affected / exposed occurrences (all)	1 / 12 (8.33%) 1	0 / 11 (0.00%) 0	
Libido increased			
subjects affected / exposed occurrences (all)	0 / 12 (0.00%) 0	1 / 11 (9.09%) 1	
Infections and infestations			
infection cicatrice	Additional description: treated with antibiotics		
subjects affected / exposed occurrences (all)	1 / 12 (8.33%) 1	1 / 11 (9.09%) 1	
Viral infection (common cold)			
subjects affected / exposed occurrences (all)	2 / 12 (16.67%) 2	3 / 11 (27.27%) 3	
Herpes zoster cutaneous disseminated			
subjects affected / exposed occurrences (all)	1 / 12 (8.33%) 1	0 / 11 (0.00%) 0	

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported