

# Balance exercises help rehabilitation after hip fracture

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 03/03/2017	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
<b>Last Edited</b> 29/01/2019	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Hip fracture is a major health problem that usually occurs in older people that is strongly linked with declines in mobility (movement), and independence, and quality of life. Hip fractures are usually treated through surgery but also require rehabilitation, usually done through a different types of physical therapy, in order to improve mobility and quality of life. However, there are still doubts about rehabilitation effectiveness, when it should happen after an injury and for how long, as well as which kind of techniques should be used. Therefore, the aim of this study is to compare a hospital rehabilitation program that includes a balance task-specific training with a program of general physical training in order to improve physical function, pain, activities of daily living (ADL), balance, and quality of life in subjects with hip fracture treated surgically.

### Who can participate?

Adults older than 70 who have internal hip fixation surgery

### What does the study involve?

Participants are randomly allocated to one of two groups. Those in the first group receive standard individual physiotherapy sessions led by a physiotherapist. This involves improving movement through increasing muscle strength using exercises and modifying daily living activities. Those in the second group receive balance specific exercises. This involves performing tasks that tries to support improving their balances through specific exercises, walking, movement, and modifications of daily living activities. Participants are followed up after 12 months to assess their physical function, pain, quality of life and balance.

### What are the possible benefits and risks of participating?

Participants may benefit from improving physical function, activities of daily living, balance, quality of life and pain intensity. Possible risks of participating are transient pain worsening, autonomic and sensory problems

### Where is the study run from?

Scientific Institute of Lissone, Salvatore Maugeri Foundation IRCCS (Italy)

When is the study starting and how long is it expected to run for?  
July 2012 to December 2015

Who is funding the study?  
University Hospital of Cagliari (Italy)

Who is the main contact?  
Prof Marco Monticone  
mmonticone@gmail.com

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Prof Marco Monticone

**Contact details**  
Cittadella Universitaria  
Strada Statale, 554  
Monserrato (Cagliari)  
Italy  
09042  
+39 070 6753109  
mmonticone@gmail.com

## Additional identifiers

**Protocol serial number**  
N/A

## Study information

**Scientific Title**  
Balance task-specific training contributes to improving physical function in older subjects undergoing rehabilitation following hip fracture: A randomized controlled trial.

**Study objectives**  
An in-hospital rehabilitation program including balance task-specific training contributes to improving physical function as well as pain, activities of daily living (ADL), balance, and quality of life in older subjects with hip fracture treated surgically.

**Ethics approval required**  
Old ethics approval format

**Ethics approval(s)**  
University Hospital of Cagliari Independent Ethical Committee, 27/12/2016, ref: PN/2016/7626

**Study design**

Randomized controlled trial

## **Primary study design**

Interventional

## **Study type(s)**

Treatment

## **Health condition(s) or problem(s) studied**

Hip fracture

## **Interventions**

Participants are randomly allocated to one of two groups. The clinicians mailed the principal investigator, who randomized the subjects to one of the two treatment programs using a list of blinded treatment codes and an automatic assignment system to conceal the allocation. The principal investigator obtaining and assessing the data and the biostatistician making the analyses, were both blinded to the treatment allocation. The clinicians, the physiotherapists, and the patients cannot be blinded. All of the subjects followed the exercise programs individually. The physiotherapists arranged 90-minute sessions five times a week for four weeks. Exercises were performed at medium intensity.

**Experimental group:** Those in this group perform balance task-specific exercises during standing with open and closed eyes with the goal of searching for a symmetrical load on their legs, during standing while keeping proprioceptive pillows under their feet, during standing by shrinking the support base, or maintaining the tandem position, or maintaining their position with and without the use of a proprioceptive bubble. Participants are asked to walk on a rectilinear trajectory with or without crutches, while changing speed and direction, or while performing motor-cognitive tasks such as turning their head on the right and left side following physiotherapists' inputs. Additional exercises such as moving from a sitting to a standing position, ascending/descending stairs and climbing obstacles are also performed.

**Control group:** This group follows general physiotherapy. This involves participants performing open kinetic chain exercises in supine position on the couch aimed at improving the range of hip motion, increasing hip and lower limb muscle strength, and maintaining the length and elasticity of thigh tissues.

During walking training, subjects of both groups are instructed to use their crutches reciprocally to regain a symmetrical gait pattern. Furthermore, ergonomic advice is provided to both groups by means of a booklet given to the patients during the first session of treatment in order to facilitate the modification of their daily living activities.

Participants are followed up after 12 months to assess their physical function, pain, quality of life, and balance.

## **Intervention Type**

Behavioural

## **Primary outcome(s)**

Physical function is assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) at baseline, 3 weeks, and 12 months.

### **Key secondary outcome(s)**

1. Pain is measured using the Pain Numerical Rating Scale at baseline, 3 weeks, and 12 months
2. Quality of Life is assessed using the Short-Form Health Survey at baseline, 3 weeks, and 12 months
3. Activities of daily living (ADL) is assessed using the Functional Independence Measure at baseline, 3 weeks, and 12 months
4. Balance is assessed using the Berg Balance Scale at baseline, 3 weeks, and 12 months

### **Completion date**

31/12/2015

## **Eligibility**

### **Key inclusion criteria**

1. Internal fixation due to extra-capsular hip fractures such as trochanteric, subtrochanteric, pertrochanteric, intertrochanteric, basal and lateral femoral fractures in the dominant leg 7–10 days before admission to the Rehabilitation Unit
2. Good understanding of Italian
3. Age of >70 years

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Senior

### **Sex**

All

### **Key exclusion criteria**

1. Previous hip and lower limbs surgery
2. Systemic illness
3. Cognitive impairment (MMSE<24)
4. Recent myocardial infarctions
5. Cerebrovascular events
6. Chronic lung or renal diseases

### **Date of first enrolment**

01/07/2012

### **Date of final enrolment**

31/12/2014

## **Locations**

### **Countries of recruitment**

Italy

### Study participating centre

Scientific Institute of Lissone, Salvatore Maugeri Foundation IRCCS

Via Monsignor Bernasconi, 16

Lissone

Monza Brianza

Italy

20851

## Sponsor information

### Organisation

University of Cagliari

### ROR

<https://ror.org/003109y17>

## Funder(s)

### Funder type

University/education

### Funder Name

University Hospital of Cagliari

## Results and Publications

### Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Marco Monticone at [mmonticone@gmail.com](mailto:mmonticone@gmail.com)

### IPD sharing plan summary

Available on request

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/03/2018	29/01/2019	Yes	No