



## **Role and importance of Physiotherapy in postoperative procedures of Intertrochanteric fractures in elderly. A literature Review**

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### **ABSTRACT**

*The intertrochanteric fracture in the elderly is a serious general medical condition. Early rehabilitation post operatively is the key to reduce lengthy bed rest while avoiding complications such as pressure sores, along with promoting postoperative active recuperation. The objective was to conduct a literature review of postoperative physical therapy protocols for elderly patients with intertrochanteric fractures after common surgical procedures such as proximal femoral nailing (PFN), Dynamic hip Screw (DHS) and Total Hip Arthroplasty (THA). To locate all relevant studies, a PubMed literature search was carried out. Additionally, research articles were manually selected from the article reference lists. The terms "intertrochanteric," "transtrochanteric," "subtrochanteric," "geriatric," was used in various combinations in the search strategy. Copied examinations were recognized and eliminated utilizing Endnote copy capability. In English, we selected randomized controlled trials conducted on elderly people over the previous ten years. This is the commonest fractures amongst our geriatric population and the results provide in depth analysis of accepted rehabilitation protocols to be followed. It is still difficult to provide elderly patients with hip fractures appropriate timely medical attention. This review compiles in detail the reduction of the length of a patient's hospital stays, the number of complications, and the risk of death through interdisciplinary orthogeriatric management.*

**Keywords:** Proximal femoral Nailing, Dynamic Hip Screw, Total Hip Arthroplasty, Rehabilitation, Elderly, intertrochanteric fractures

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### **INTRODUCTION**

Over the past few decades, there has been a global rise in the number of people who can survive. The comorbidities that are present in this population, such as a decline in muscle strength, balance, reflexes, and bone mineral density, which results in osteopenia and osteoporosis, have contributed to an increase in the number of trauma cases and, as a result, fractures in the geriatric population. [1] These cracks are the primary driver of handicap, utilitarian disability and demise in older individuals. [2] Figure 1 depicts the anatomy of femoral neck and shaft that forms the crux of the physiotherapeutic management.

The treatment currently recommended for these patients is preferably surgical, with the introduction of osteosynthesis material, as it generates stability and an earlier return of function, so that the elderly patient does not remain bedridden for long, with the resulting deterioration of his or her state of health, which may lead to severe functional decline and even death. [5] Patients with PFFs frequently have comorbid conditions, and 50% of PFF cases involve individuals who already require nursing care [4]. A person above the age of 80 or someone who has the usual geriatric multimorbidity in addition to being older than 70 years old is considered a geriatric patient. Delicacy is described as a situation of increased vulnerability to stresses, typically due to a lack of assets [5]. Because homeostasis has a poor resolution, even a tiny occurrence such as urinary tract infection or minor surgery might result in a significant and

disproportionate decline in the person's health [5]. Figure 2 and 3 describes the various surgical procedures post intertrochanteric fractures that are currently administered.

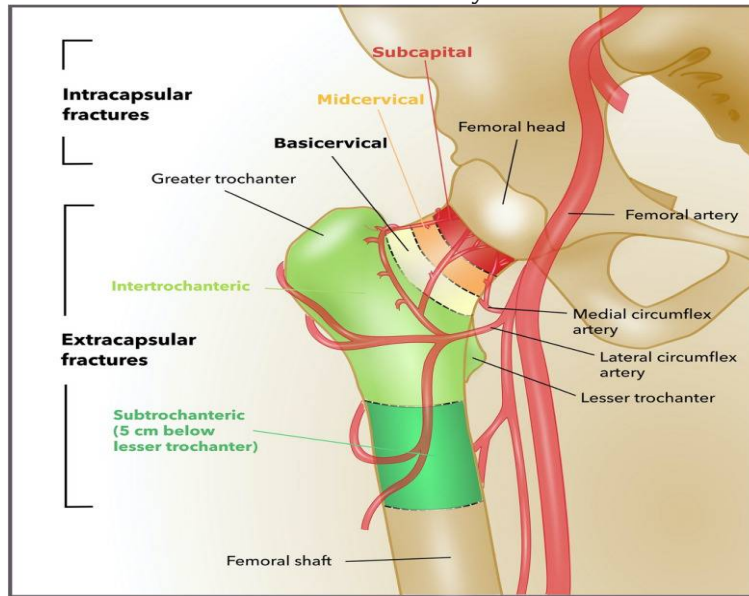


Figure 1- Anatomy of Femoral shaft [2]

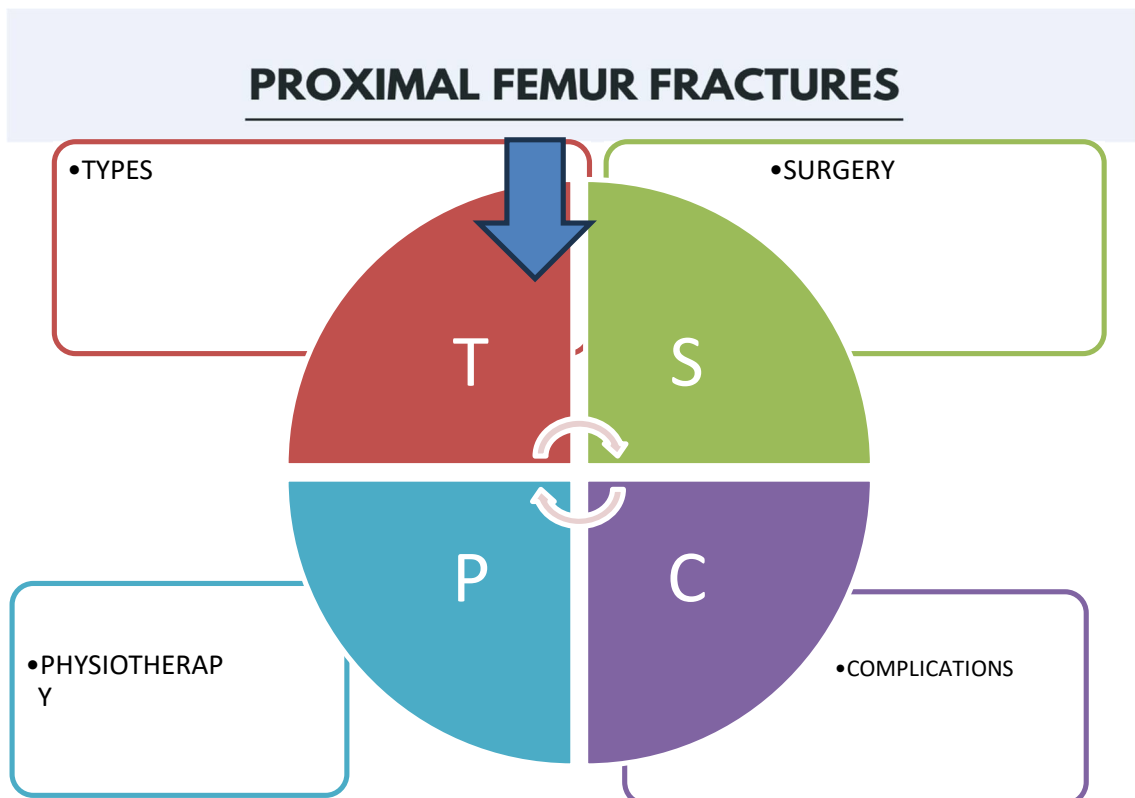


Figure 2- Depiction of TSPC mnemonic to understand the Geriatric Physiotherapy

Surgery should ideally be carried out within the first 24 hours [7]. The risk of peri-employment complications including aspiratory embolism, pneumonia, deep vein apoplexy, urinary tract illnesses, and strain ulcers increases when medical operation is performed beyond 24 hours. If surgery is postponed for more than 48 hours, the mortality risk considerably rises. Patients who get a surgery within 48 hours had a 20% decreased likelihood of dying within a year, and patients with comorbid conditions, in particular, gain the most from a procedure completed within 24 hours [8].

The number of elderly people in the population will rise in tandem with an increase in life expectancy, which will in turn raise the number of hip fractures that occur. By 2050, it is anticipated that there will be approximately 4.5 million hip fractures per year worldwide. Patients with hip fractures still have a high

mortality rate and a risk of permanent disability and dependence, even after successful surgery. As a result, these patients' treatment-related medical expenses are rising. Thus, hip cracks are an inexorably significant worldwide general medical problem.

**MATERIAL AND METHODS**

To locate all relevant studies, a PubMed literature search was carried out. Additionally, research articles were manually selected from the article reference lists. The terms "Intertrochanteric fracture," "Proximal Femoral nailing," "Dynamic Hip Screw," "Proximal Femoral Fractures," "Elderly," and "Geriatric" were used in various combinations in the search strategy. Copied examinations were recognized and eliminated utilizing Endnote copy capability. The edited compositions and titles of article recovered were screened to reject the unessential examinations. After that, we looked at full-text articles to see if they met the inclusion criteria.

**Inclusion and Exclusion Criteria**

Inclusion criteria were: (1) Studies investigating the association of a Intertrochanteric Fractures with Postoperative Techniques of Proximal Femoral Nailing (PFN), Dynamic Hip Screw (DHS), and Total Hip Replacement (THR); (2) studies using elderly population above 65 years; and (3) peer-reviewed articles and all types of reviews published in English between January 2012 and March 2023. Unpublished theses, reports, and conference proceedings were excluded. Animal studies were also excluded.

**Data Extraction and Quality Assessment**

We did not conduct a meta-analysis as part of the review process because of the diverse focus and outcomes of the refined studies. Information was separated utilizing a normalized structure by one commentator and confirmed by a subsequent analyst. The following information was taken from eligible studies: first author, publication year, country, study design, characteristics of the population and sample size, specimen type, duration of follow-up, and main findings.

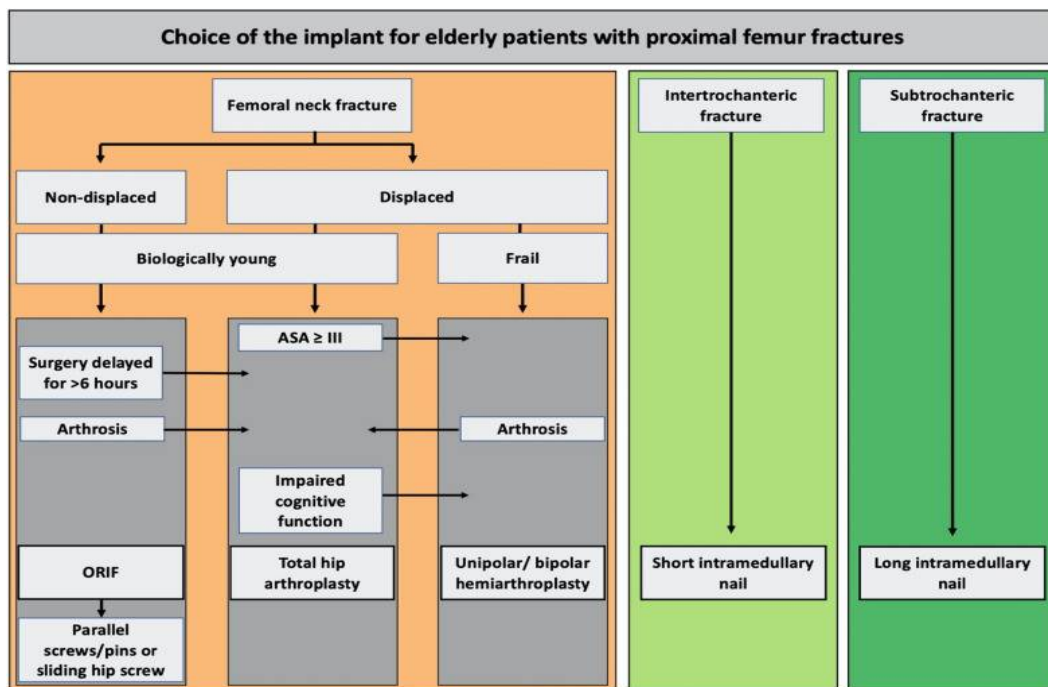
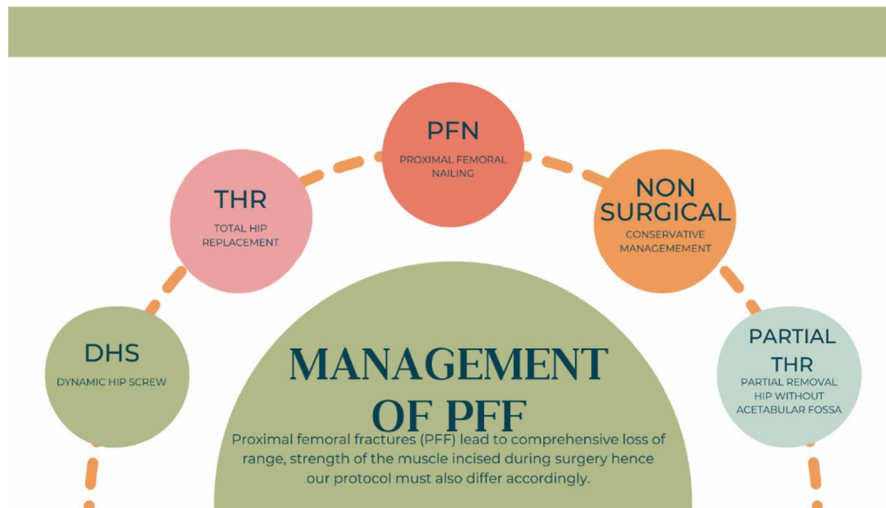


Figure 3- Bhandari M, Swiontkowski M. Management of acute hip fracture. *N Engl J Med.* 2017;377(21):2053–62. doi: 10.1056/NEJMcp1611090.

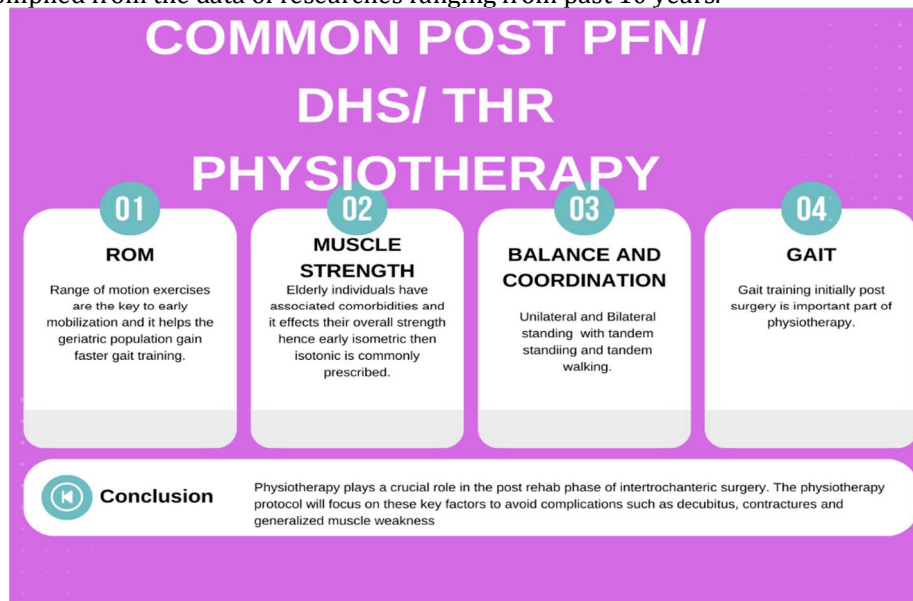
**RESULTS**

For people with cognitive impairment, recovery from a hip fracture is sometimes difficult [11]. Up to 40% of senior people with hip fractures have cognitive impairment such as dementia, delirium, or moderate cognitive impairment [12]. Approximately 19% of elderly people with hip fractures have dementia. For patients with hip fractures and dementia, Rösler et al. [13] created the cognitive geriatric unit (CGU), a specialized geriatric ward. In contrast to traditional geriatric care, the CGU features extra components to reduce patient transfers, such as concealed exit doors, lighter in the halls and patient rooms, night lighting, and a treatment room on the ward.



**Figure 4- Management of Proximal femoral Fractures**

The orthogeriatric assessment and quick optimization of surgical fitness are both advised by NICE and ANZ recommendations. Early goal-setting for interdisciplinary rehabilitation is crucial; these goals should include regaining mobility and independence, easing the transition back to pre-fracture living arrangements, and ensuring long-term welfare. Integration with associated services should be taken into consideration [14] [15] especially with regard to mental health, fall prevention, and bone health care. The following areas should get special attention from the orthopedic surgeon: (i) postoperative mental health care, including postoperative delirium; (ii) fall prevention management because such falls might be related to postoperative delirium; and (iii) osteoporosis management. Figure 5 depicts the common physiotherapy protocols compiled from the data of researches ranging from past 10 years.



**Figure 5- Depicting the Common physiotherapeutic Procedures**

**DISCUSSION**

After surgery, patients who receive proper rehabilitation experience shorter hospital stays, improved physical function, and greater independence in their everyday lives, all of which have been demonstrated to lower medical and carer costs [1]. The effect of rehabilitation after hip fractures is larger on senior patients than on younger patients due to the high percentage of elderly patients with hip fractures. For adequate rehabilitation planning and the patients' functional recovery, orthopedic physicians' interest in and participation in postoperative rehabilitation programs created especially for hip fracture patients who undergone surgery are crucial. Type of fracture, localization of additional injuries, and method of fixation are crucial variables for optimizing rehabilitation programs [18].

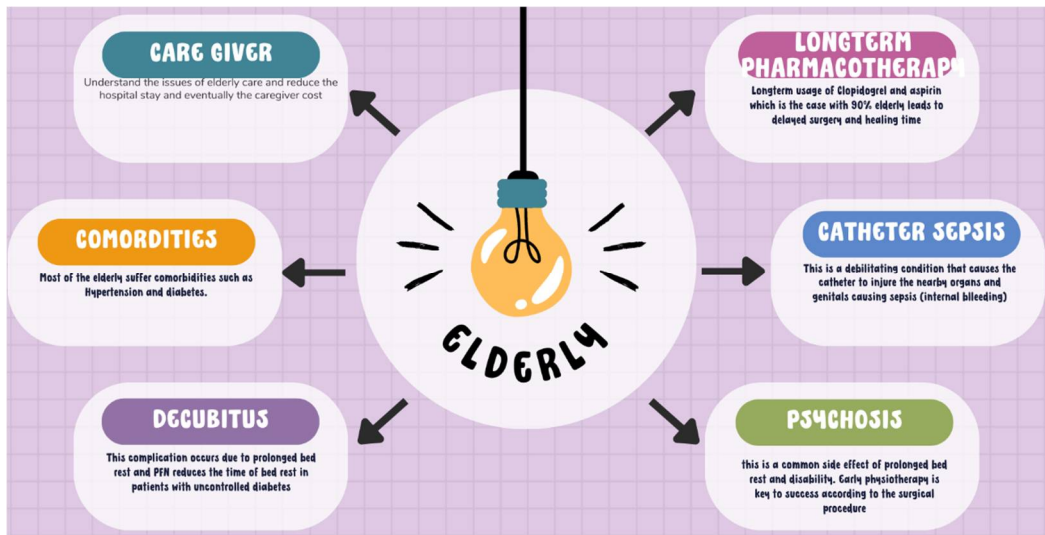


Figure 6- Discussion of Elderly needs post operative femoral fractures

## CONCLUSION

Postoperative rehabilitation may enhance postoperative clinical outcomes and quality of life in hip fracture patients, but there is insufficient data to definitively support this potential benefit due to the diversity of research methods and variations in results among published studies. An orthopedic surgeon must support patient-specific rehabilitation strategies and be aware of the advantages and disadvantages of various choices.

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## CONFLICT OF INTEREST:

The authors declare that there is no potential conflict of interest relevant to this article.

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