

HOSPITAL PHYSICIAN®

ORTHOPAEDIC SURGERY BOARD REVIEW MANUAL

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Fractures of the Femoral Diaphysis in Adults

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I. INTRODUCTION

A. **Magnitude of injury**

1. Fractures of the femoral shaft can be life-threatening.
2. The fractures can result in 2 to 3 units of blood loss.
3. They are rarely isolated injuries.

B. **Epidemiology**

1. The fractures are typically high-energy injuries resulting from motor vehicle accidents.
2. Fractures of the femoral shaft occur at a rate of 1 fracture per 10,000 people per year.
3. The population distribution of the fractures follows a bimodal pattern, with more fractures found in those younger than 30 years and older than 65 years.
4. The fractures usually occur in men age 25 to 30 years.

C. **Anatomic considerations**

1. The femur is the longest, strongest, and heaviest bone in the body and requires a substan-

tial amount of force to be broken.

2. The deep femoral artery provides the nutrient artery to the femoral shaft that enters posteriorly along the linea aspera.
3. The sciatic nerve is well protected by muscle as it courses posteriorly to the femoral shaft, and is rarely injured by femoral fractures.
4. Several muscles insert on the femur, and these produce typical deformities when the femoral shaft is fractured.
 - a. Midshaft fractures typically shorten and have apex lateral angulation from the pull of the adductor musculature.
 - b. Proximal fragments tend to flex, abduct, and externally rotate from the pull of the iliopsoas muscle, gluteal muscles, and short external rotators.

II. CLASSIFICATION

- A. The Winquist and Hansen¹ scheme, based on the extent of comminution, is the most commonly