The increasing incidence of pertrochanteric and subtrochanteric femur fractures makes their treatment ever more challenging both medically and socioeconomically. The increasing life expectancy in our population brings with it a host of factors that complicate our treatment of proximal femur fractures in elderly people. In addition to a variety of medical conditions, these patients many times have a diminished physical and mental reserve. In order to prevent potentially fatal complications, early mobilization and weight bearing are critical determinants of our treatment. Owing to discerning inability of elderly people fractures of the lower extremity causes a longer phase of immobilisation, if the fracture is not treated in a full weight bearing, stable manner. Thus the risk of complication such as thrombosis, embolism, pneumonia or decubital ulcera increases and the physical decline will be accelerated.

In the next two decades there will be a doubling or a tripling of the incidence of proximal femur fractures.

Early mobilisation of the predominant elderly people and avoidance of secondary complications are the two most important aims in the treatment of proximal femur fractures. This can be achieved only by the operative treatment.

Since the mechanical stress at the hip joint while walking the equivalent of 3.3-times of body weight – while running even 4.3-times of body weight. Hence the operative procedure and the implant must be designed to accommodate this.

Ideally the operative procedure should provide a stable construct that will allow the patient to be unlimited in their weight bearing. The predominantly elderly patient won’t realize at home partial load bearing of the injured leg after discharge of in-hospital treatment, which was acquired under physiotherapeutic instruction during hospital stay. Additional to trauma senile patients suffer traumatisation by treatment, change of usual living space into an unfamiliar hospital space as well as long rest in bed.

### Type of fracture

Most of classifications consider unstable intertrochanteric femur fractures separated from unstable subtrochanteric femur fractures.

According to Evans in 1949 pertrochanteric and intertrochanteric femur fractures can be classified in stable and unstable fractures. A fracture will be characterized unstable, if the fracture does not tolerate a load bearing after-treatment by reduction and stabilisation. The usual cause of this is the missing medial cortical support due to a more or less large cortical defect in the region of the calcar. Thereby either a huge medial fragment separately or an additional dorsal fragment within the meaning of a four-fragment fracture is broken out. Displacement of the dorso-medial lesser trochanter fragment alone causes no instability because medial stress distribution at the calcar will not be interrupted. However there is a relevant instability, if the defect reaches the medial part of the calcar. This instability increases with the size of the fragments, their comminution and displacement. The dorso-medial comminuted fracture zone prevents the discharge of forces across Adam’s arc into the femur.

While the classification according to Evans is used above all in the anglo-american speaking countries, the classification of the proximal femur fractures according to the AO is applied predominantly in the European area.

In the AO-classification, unstable intertrochanteric femur fractures with diagonal and reversed fracture line will be classified as 31 A 3-3.
fractures. In these fractures the medial and lateral cortices are both fractured simultaneously. An additional medial fragment – the lesser trochanter – is displaced.

**Results**

Between August 1992 to November 2006 192 unstable intertrochanteric femur fractures were stabilised by the Dynamic Martin Screw (DMS). All fractures were unstable with a reversed fracture zone. These fractures were classified as 31A3-3 according to the AO-classification.

148 of the patients were women (77.1%) and 44 patients were men (22.9%) with an average age of 79.8 years ($\sigma = \pm 13.5$ years) ranging from 21 to 100 years. At the moment of the trauma 82.8% of the patients were 70 years or older. Almost 127 of the patients (66.1%) were over 80 years old. 132 of the 148 affected women (89.2%) were 70 years or older, 16 women were younger than 70 years (10.8%). Almost 107 women (72.3%) and 20 men (45.5%) were over 80 years old.

The average age of the 148 affected women was 82.0 years ($\sigma = \pm 11.3$ years) with a range from 29 to 100 years. In the group of the 44 traumatized men the mean age was 72.6 years ($\sigma = \pm 17.4$ years) with a range from 21 to 95 years. 27 of these men were older (61.4%) and 17 men younger (38.6%) than 70 years (Fig. 10.1).

The average hospital stay following surgery was 23.4 days ($\sigma = \pm 10.5$ days) with a range from 2 to 88 days. Prolonged clinical stay was caused by concomitant internal diseases and in some cases by postoperative complications (Fig. 10.2).

The indication for surgery was fracture due to significant trauma in 188 cases and in 4 cases of pathologic fractures. In 113 cases (58%) trauma mechanism was a household fall. 26 patients (14%) had an trauma in the home for the aged people or respectively in a nursing home. 34 patients (18%) tumbled on the road. 3 (3%) patients were in a traffic accident (car or bicycle). 4 patients (2%) had a fall at work. 8 patients (4%) had a fall in a clinic.

Operative procedure was carried out in 76.6% of the fractures within 24 hours after the accident. In 39 cases (20.3%) the intertrochanteric reversed femur fractures were stabilised just on the day of accident. In 108 patients...