Range of motion of the hip is an important factor to consider for proximal femoral osteotomy. Range of motion of the hip can be limited due to intra-articular and extra-articular causes. Intra-articular loss of range of motion can be due to capsular contracture, adhesions, or deformity of the spherical shape of the articular surfaces. Extra-articular limitation of range of motion is due to muscle contracture or heterotopic ossification. The presence or absence of limitation of hip motion and the source of this limitation are important considerations for hip osteotomy.

Varus Deformity

Varus deformity (valgus osteotomy) requires adequate adduction of the femoral head. Adductor tenotomy may be required after valgus osteotomy because of the lengthening effect of valgus (Fig. 19-1 a). The major extra-articular limitations to adduction of the proximal segment of the femur after osteotomy are the tensor fascia lata and the gluteus medius and minimus muscles. If adequate adduction is not present when a valgus osteotomy is performed, an abduction contracture will result. Because of the long lever arm of the lower extremity, the abduction contracture, in some cases, may resolve with physical therapy and gravity. Children with coxa vara due to congenital causes may require additional surgery (Fig. 19-1 b) to lengthen the abductor mechanism. A new procedure for this, which I developed in 1998, involves removal of the entire insertion of the gluteus medius and minimus in continuity with the quadriceps (vastus lateralis) (Fig. 19-1 c and d). This is based on the same concept as the Harding (Stracathro) approach to the hip, which removes the anterior third of the gluteus medius and vastus lateralis as one unit (McLaughlan 1984). By detaching the gluteal muscles and by lengthening the tensor fascia lata, the greater trochanter is free from the extra-articular abduction contracture. The proximal femur can then be adducted within the constraints of the capsular attachments. It is also necessary to release the piriformis muscle, which can restrict internal rotation, extension, and adduction. Because the glutei are in continuity with the quadriceps, they cannot shorten. The conjoint tendon of this unit is reattached to the greater trochanter after the hip has been adducted for correction of the varus deformity (Fig. 19-1 b).
Adductors are tight after correction.

Abduction restored by adductor tenotomy.