Total hip replacement is the procedure of choice for most patients with advanced, symptomatic osteoarthritis due to congenital dysplasia of the hip. However, the complexity of arthroplasty is significantly increased because of anatomic abnormalities associated with dysplasia of the hip. In addition the relatively young age of patients may affect survival of the implant. From a biomechanical standpoint the primary surgical objective is reconstruction of the anatomical center of rotation. Independent of the pelvic bone stock the socket should be located as near as possible to the anatomical acetabular location. There are various operative strategies to ascertain sufficient stability of the socket. The anterolateral deficiency of the acetabulum can be reconstructed by bulk femoral autografting or bone impaction grafting. Furthermore controlled perforation of the medial wall or implantation of reinforcement rings and oval sockets have been described. Cementless, biological socket fixation shows superior long-term results compared to cemented cups, especially in these young patients. The location of the reconstructed acetabulum and the desired leg length influence the type of femoral reconstruction and in some cases femoral shortening is required. In this article endoprosthetic reconstructive options for developmental dysplasia of the hip are discussed depending on the femoral
and acetabular deformity.