Table 1: Demographic data of the two studied groups.

	Unrestricted weight bearing (n= 10)	**Graduated weight bearing (n= 10)**	**Z test**	**P value**
Age (years)	54.5 (50.0-65.0)	56.0 (51.0-65.0)	-0.874	0.382 (NS)
Gender (F/M)	5:5 (50%/50%)	5:5 (50%/50%)	χ^2= 0.0	1.000 (NS)
Diagnosis				
Bilateral THA: Left THA : Right THA	1:3:6 (10%/30/60%)	0:5:5 (0/50%/50%)	χ^2= 1.591	0.451 (NS)

Data are expressed as median (minimum- maximum) or number (%).

χ^2= Chi-square test.

NS= p> 0.05= Not significant.

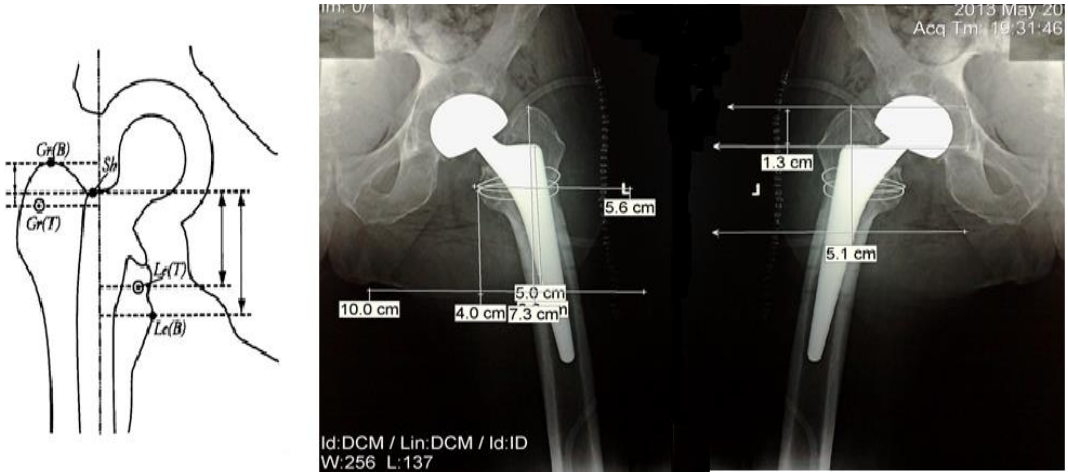

Figure 1: Digitized photography versus radiostereometric analysis.

Table 2: Comparison between the median values of the Harris hip score in the two studied groups measured at different times of assessment.

	Unrestricted weight bearing (n= 8)	Graduated weight bearing (n= 8)	Z test	P value
Initial	31.0 (30.0-40.0)	35.0 (30.0-45.0)	-1.167	0.243 (NS)
6 weeks	55.5 (50.0-69.0)	55.0 (45.0-70.0)	-0.543	0.587 (NS)
12 weeks	85.0 (70.0-97.0)	90.0 (80.0-96.0)	-0.696	0.486 (NS)

Data are expressed as median (minimum- maximum).

NS= *P* > 0.05= Not significant.

Table 3: Comparison between the median values of the short physical performance battery in the two studied groups measured at different times of treatment.

	Unrestricted weight bearing (n= 8)	Graduated weight bearing (n= 8)	Z test	P value
Initial	5.0 (3.0-6.0)	4.5 (3.0-6.0)	-0.475	0.635 (NS)
6 weeks	8.0 (6.0-9.0)	7.0 (6.00-9.00)	-0.945	0.345 (NS)
12 weeks	10.5 (8.0-12.0)	10.0 (8.00-11.00)	-1.171	0.242 (NS)

Data are expressed as median (minimum-maximum).

NS= *P*> 0.05= Not significant

Table 4: The median values of the radiological vertical mciromotion of femoral stem in the two studied groups measured at different times of treatment.

	Unrestricted weight bearing (n= 8)	Graduated weight bearing (n= 8)	Z test	P value
Initial	6.3 (5.6-7.5)	6.0 (5.5-7.2)	-1.060	0.289 (NS)
6 weeks	6.4 (5.7-7.8)	6.15 (5.5-7.4)	-1.099	0.272 (NS)
12 weeks	6.45 (5.6-7.8)	6.15 (5.5-7.4)	-1.363	0.173 (NS)

Data are expressed as median (minimum-maximum).

NS= $P > 0.05$= Not significant.

Discussion

THA is currently one of the most widely performed procedures in orthopedic practice. Although the use of cementless THA has rapidly spread, it should be remembered that problems specific for cementless THA do occur, as with cemented THA.

No marked evidence was found that makes cementless THA less desirable than cemented type despite potential complications in the mechanical stem [14]. In cementless THA, early weight bearing is common although it is still not evident enough to replace other protocols. Immediate rehabilitation with protected weight bearing after uncemented THA can be performed by gait pattern using crutches or by stair climbing [14]. No adverse effect was found regarding mciromotion or osteointegration of the femoral stem with immediate UWB following uncemented THA. There was also no correlation between immediate UWB and failure of osseo-integration or implant loosening.

In this study, we evaluated the effect of partial and full weight bearing after cementless THA with different types of hip prostheses (ABG; Stryker-Howmedica) using radiostereometric analysis (RSA). Both groups had primary cementless THA and were tested immediately after surgery and 6 and 12 weeks postoperatively. All patients were operated in a standardized way by three experienced surgeons and they were randomized to partial or full weight bearing during the first 6 weeks after surgery. Subjects of Group A started immediate UWB gait training within rehabilitation program and Group B started with GWB gait training. No adverse effect was found between the two groups, which justifies using this regimen after uncemented THA [13].

Götze et al. have collected clinical and radiographic findings of 46 patients who underwent 50 consecutive primary THA using porous-coated femoral components with 2-years follow-up period. 25 patients had performed full weight bearing immediately after THA. The authors compared the results with a previous control group that performed unrestricted weight bearing (≤50 lb) for 6 weeks and they found that the femoral components in both groups had radiographic evidence of bone ingrowth fixation at the final follow-up. Thus, it seems that bone ingrowth occurs whether partial or full weight-bearing protocol is followed for postoperative rehabilitation [15].

Only two studies found significant increase in subsidence after full weight bearing during the first 6 weeks after surgery as a result of all previous findings and clinical research results regarding the significance of weight bearing on postoperative THA patients [16, 17].

In our work, all subjects in both groups have been operated with THA recently with the postoperative manifestations of functional impairments after hip arthroplasty were investigated by the use of HHS and SPPB. A physical examination was conducted for each subject prior to acceptance to enrollment in this study. All subjects have been inspected for postural asymmetry and deformities. The examination consisted of checking any muscle weakness, possible joint instability, leg discrepancy ≤ 1 inch, balance

impairment, sensory abnormalities, vascular trouble or other conditions that may affect the lower and upper extremities as well as any related body segments.

The novelty of this study comes as we study the effect of immediate unrestricted weight bearing and how it affects the function, mobility and restoration (especially gait performance and independency) and, at the same time, how weight bearing affects the mciromotion of THA prosthetatic stem vertically. Limitations of this study are the number of patients which is relatively low, and that RSA markers were not used to measure the amount of subside (migration).

In this work, immediate UWB was found to have the same effect as graduated weight bearing on hospital stay, rehabilitation process, gait parameters and independency after primary cementless THA.

Conclusion

Immediate unrestricted weight-bearing rehabilitation following cementless THA had no adverse effect on the outcome of the operation or on the axial mciromotion of the hip prostheses.