TABLE E-1 Demographic Information on the Patients and Component Data

Case	Gender	Age at operation (years)	Height (cm)	Weight (kg)	Time in situ (years)	Cup	Stem	Head material	Head size (mm)	Articulating liner	Debris	Comment
1.	F	36	165	70	7.8	Protek[S]	CLS[S]	Alumina	28	UHMPE	Yes	Aseptic loosening of cup
2.	F	52	160	68	10.9	Duraloc 1200[D]	CLS[S]	Alumina	28	UHMPE	Yes	Aseptic loosening of cup
3.	F	45	175	78	12	Protek[S]	CLS[S]	Alumina	28	UHMPE	No	Aseptic loosening of both components
4.	M	59	155	59	10.3	Duraloc 1200[D]	CLS[S]	Alumina	28	UHMPE	Yes	Aseptic loosening of cup
5.	M	31	165	73.5	8.0	Duraloc 1200[D]	CLS[S]	Alumina	28	UHMPE	Yes	Aseptic loosening of both components
6.	M	52	168	72	9.7	Protek[S]	CLS[S]	Alumina	28	UHMPE	No	Aseptic loosening of cup
7.	M	58	158	70	12.6	Duraloc 1200[D]	CLS[S]	Alumina	28	UHMPE	No	Aseptic loosening of cup
8.	F	41	160	55	10.8	Duraloc 1200[D]	IPS[D]	Zirconia	28	UHMPE	No	Aseptic loosening of both components
9.	M	50	176	74	12.6	Duraloc 1200[D]	IPS[D]	Alumina	28	UHMPE	No	Aseptic loosening of cup
10.	M	31	175	74	11.4	ABG°	ABG°	Alumina	28	UHMPE	Yes	Worn polyethylene
11.	M	57	160	48	14.2	Protek[S]	CLS[S]	Alumina	28	UHMPE	No	Aseptic loosening of both components
12.	M	61	170	67	10.7	ABG°	ABG°	Zirconia	28	UHMPE	No	Aseptic loosening of both components
13.	F	60	157	48	0	Duraloc 1200[D]	IPS[D]	Alumina	28	UHMPE	No	Damaged head surface during reduction of femoral head into socket
14.	F	57	154	56	8.9	Duraloc 1200[D]	CLS[S]	Alumina	28	UHMPE	Yes	Aseptic loosening of cup
15.	M	58	174	74	0	Duraloc 1200[D]	IPS[D]	Alumina	28	UHMPE	No	Dislocation of femoral head

[D]=Depuy; °=Osteonics; [S]=Sulzer; UHMPE=ultra high molecular weight polyethylene

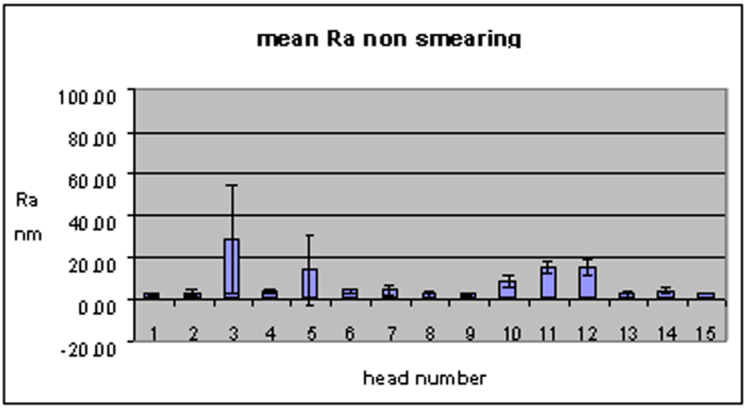
TABLE E-2 Comparison Between the Direct and Radiographic Measurements of Polyethylene Wear in Fifteen Implants

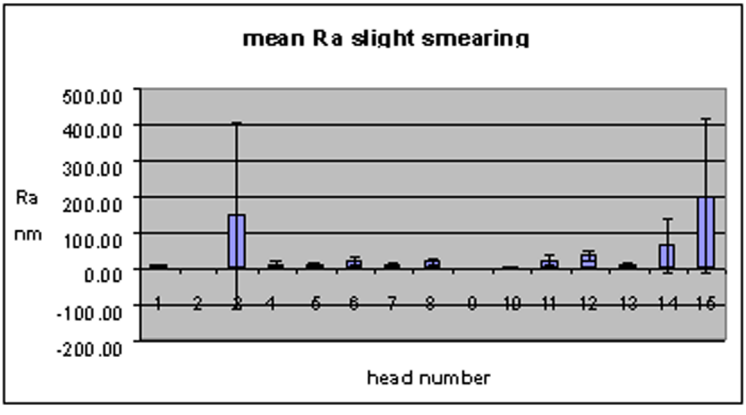
Case	Wear (mm)		Difference (B-A)+
	Direct (A)	Radiographic (B)*	
1	1.86	2.14 ± 0.03	0.28
2	1.69	1.46 ± 0.08	-0.23
3	1.24	0.69 ± 0.09	-0.55
4	1.68	1.81 ± 0.05	0.13
5	1.49	1.51 ± 0.14	0.02
6	1.19	1.38 ± 0.08	0.19
7	1.17	1.04 ± 0.05	-0.13
8	1.13	1.15 ± 0.04	0.02
9	1.16	2.03 ± 0.07	-0.16
10	2.19	1.01 ± 0.06	-0.15
11	1.27	1.16 ± 0.12	-0.11
12	1.28	1.08 ± 0.09	-0.2
13	N/A	N/A	N/A
14	1.82	1.63 ± 0.06	-0.19
15	N/A	N/A	N/A
Mean	1.47	1.39	-0.08 ± 0.025

*: The values are expressed as the mean and the standard deviation of six measurements
+: Positive values indicate overestimation and negative values indicate underestimation
N/A: Non applicable

TABLE E-3 Relationship Between the Linear Polyethylene Wear and Different Parameters

Parameters	Wear per year (mm) (Standard deviation)
Age	
< 55 years old	0.15 (0.06)
≥ 55 years old	0.13(0.04)
Gender	
Male patients	0.15 (0.04)
Female patients	0.13(0.03)
Activity score	
5 points	0.13(0.04)
6 points	0.145(0.05)
Duration of implantation	
< 10 years	0.13(0.03)
≥ 10 years	0.15(0.04)
Type of heads	
Alumina ceramic	0.137(0.03)
Zirconia ceramic	0.144(0.05)
Type of stems	
CLS	0.141(0.03)
ABG	0.148(0.04)
IPS	0.131(0.03)
Type of cups	
Protek	0.149(0.04)
ABG	0.145(0.04)
Duraloc	0.139(0.03)





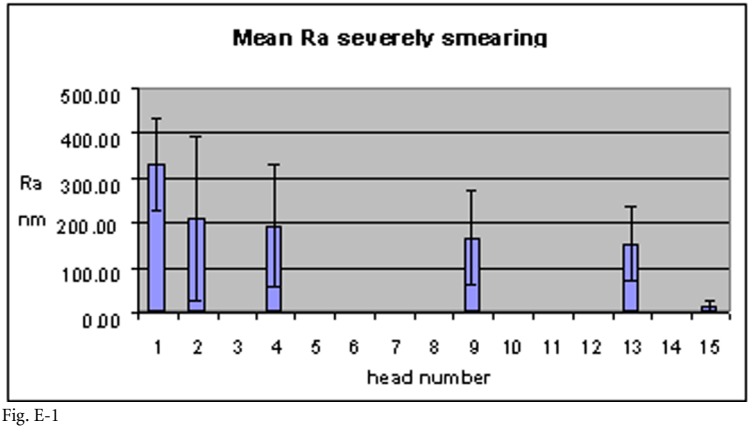
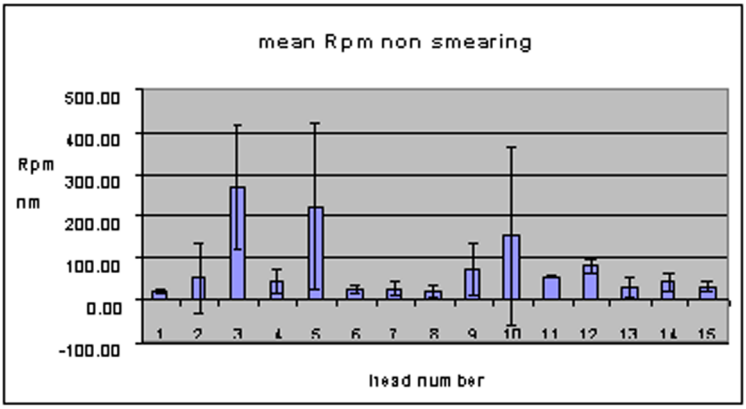
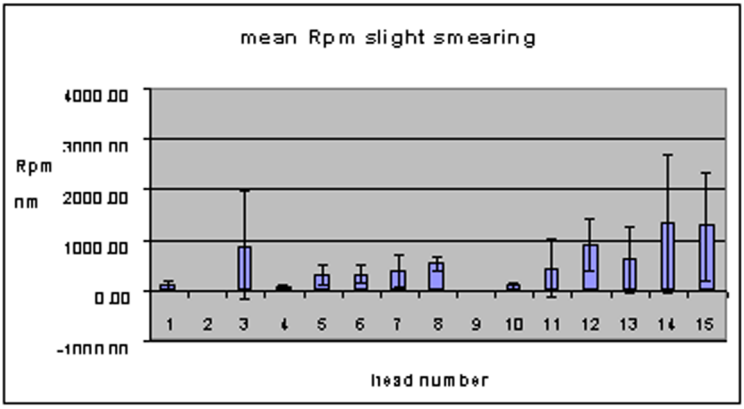


Fig. E-1

Three bar graphs demonstrate mean Ra in nonsmeared, slightly smeared, and severely smeared regions on the femoral heads. No difference ($p = 0.15$) in Ra was detected between the slightly smeared and nonsmeared regions. On the contrary, a significant difference ($p = 0.002$) in Ra was found between the nonsmeared and severely smeared regions irrespective of magnification.





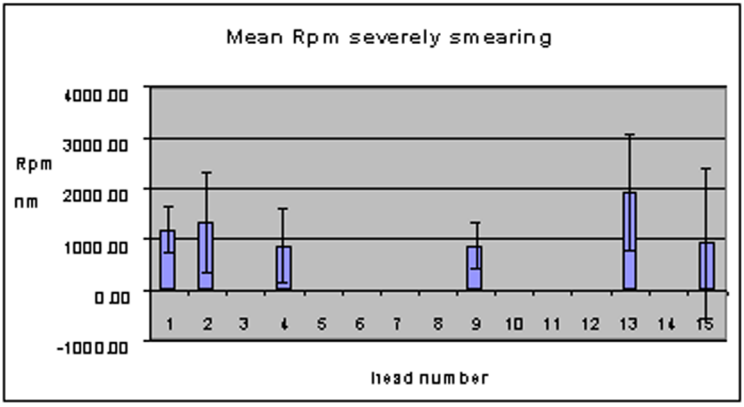


Fig. E-2

Three bar graphs show mean Rpm in nonsmeared, slightly smeared, and severely smeared regions on the femoral heads. No difference ($p = 0.15$) in Rpm was detected between the slightly smeared and nonsmeared regions. On the contrary, a significant difference ($p = 0.002$) in Rpm was found between the nonsmeared and severely smeared regions irrespective of magnification.