

**Table e-1 Demographic Data**

Patient	Gender	Age	Follow-up (months)	Weight (kg)	Height (m)	BMI	Lean Body Mass (kg)	Implant	Head size (mm)
1	F	69	17	74.3	1.68	26.3	50.55	Total Hip Replacement*	36
2	M	36	7	80.7	1.85	23.6	64.41	Total Hip Replacement	36
3	F	61	13	63.5	1.66	23.0	46.29	Total Hip Replacement	36
4	M	39	25	124.7	1.78	39.4	74.35	Total Hip Resurfacing	52
5	M	45	12	93.9	1.74	31.0	66.01	Total Hip Resurfacing	48
6	M	44	23	75.3	1.72	25.5	58.30	Total Hip Resurfacing	46
7	M	53	24	111.1	1.85	32.5	76.05	Total Hip Resurfacing	50
Mean	--	49.6	17.3	89.1	1.75	28.7	62.28	--	43.4
Control	M	34	--	100	1.85	29.2	62.60	None	--

\* Bilateral

Table e-2 Patient Activity and Ion Data Summary

	Low-intensity week			High-intensity week			Treadmill test								
	Million cycles per year	Cobalt in Serum (ppb)	Chromium in Serum (ppb)	Million cycles per year	Cobalt in Serum (ppb)	Chromium in Serum (ppb)	$\Delta$ in activity between low- and high-intensity weeks (%)	$\Delta$ in CoS between low and high-intensity weeks (%)	$\Delta$ in CrS between low and high-intensity weeks (%)	Million cycles per year	Avg. Cobalt in Serum (ppb)	Avg. Chromium in Serum (ppb)	$\Delta$ in activity between low-intensity week and treadmill test (%)	$\Delta$ in CoS between low-intensity week and treadmill test (%)	$\Delta$ in CrS between low-intensity week and treadmill test (%)
Patient 1	2.93	3.22	3.80	2.98	2.68	3.62	2	-16.7	-4.8	31.40	3.12	3.79	973	-3.1	-0.3
Patient 2	1.85	0.87	1.34	2.48	0.90	1.43	34	3.1	6.3	27.12	0.81	1.29	1,364	-6.9	-3.8
Patient 3	2.73	1.02	1.50	3.87	1.03	1.46	41	1.0	-2.4	31.62	1.00	1.41	1,056	-1.6	-6.2
Patient 4	1.62	0.97	2.70	2.00	1.02	2.79	23	4.9	3.3	28.96	1.16	2.85	1,687	19.2	5.5
Patient 5	1.12	1.29	2.11	1.56	1.28	2.43	39	-0.6	15.3	34.56	1.36	2.23	2,976	5.4	6.0
Patient 6	2.53	0.81	1.79	2.80	0.91	1.87	11	12.3	4.2	34.20	0.90	1.84	1,250	11.2	2.4
Patient 7	1.32	1.60	1.35	1.90	1.24	1.24	44	-22.7	-8.3	28.28	1.55	1.37	2,044	-3.3	1.7
Mean	2.02	1.40	2.08	2.51	1.29	2.12	28	-2.7	2.0	30.88	1.41	2.11	1,621	3.0	0.8
Control	1.17	<0.3	0.06	2.55	<0.3	0.04	118	0.0	-33.3	30.67	<0.03	0.06	2,525	0.0	0.0

ppb=parts per billion