

Fig. E-1A

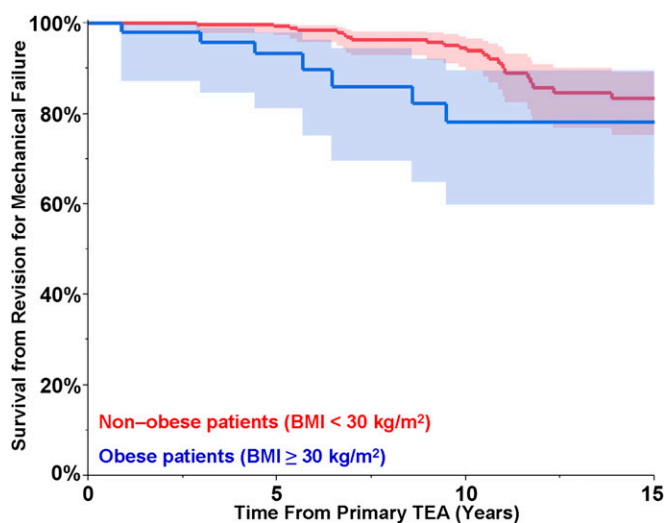


Fig. E-1B

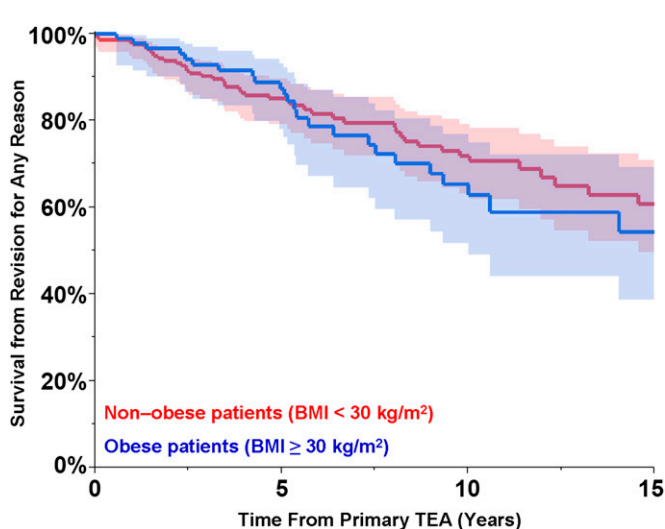


Fig. E-1C

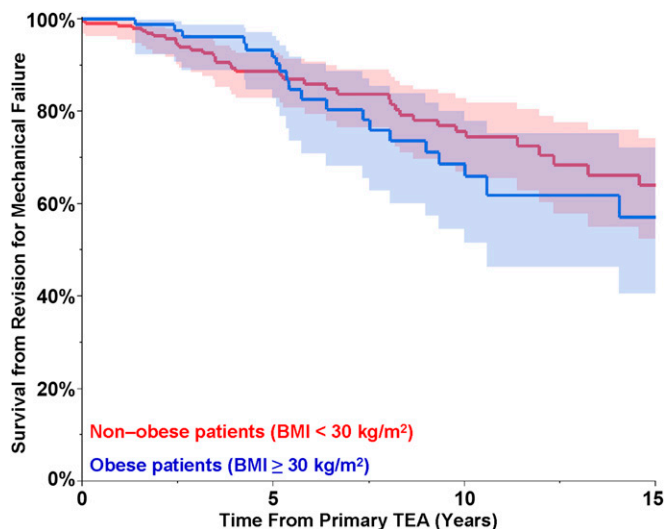


Fig. E-1D

Kaplan-Meier curves for non-obese and obese patients, showing the survivorship estimates of primary total elbow arthroplasty (TEA) that was performed for inflammatory conditions using the end points of revision for any reason (**Fig. E-1A**) and revision for mechanical failure (**Fig. E-1B**) and the survivorship estimates of primary TEA that was performed for acute traumatic and posttraumatic conditions using the end points of revision for any reason (**Fig. E-1C**) and revision for mechanical failure (**Fig. E-1D**). The shaded area represents the 95% CI.

TABLE E-1 Patients' Demographic Characteristics

	Non-Obese Patients	Obese Patients
No. of total elbow arthroplasties	564	159
No. of total elbow arthroplasties involving male patients*	131 (23%)	42 (26%)
No. of total elbow arthroplasties involving female patients*	433 (77%)	117 (74%)
Patient age at the time of surgery† (yr)	62.4 ± 14.2	62.2 ± 11.9
BMI† (kg/m ²)	24.2 ± 3.4	35 ± 4.3
BMI range categories‡		
<25 kg/m ²	312	—
25 to <30 kg/m ²	252	—
30 to <35 kg/m ²	—	97
35 to <40 kg/m ²	—	39
≥40 kg/m ²	—	23
Height† (m)	1.64 ± 0.01	1.64 ± 0.01
Weight† (kg)	65 ± 12.6	94.3 ± 15.6
Anesthesia time† (min)	190 ± 79	198 ± 88
Operative time† (min)	146.1 ± 73.5	155.5 ± 81
Tourniquet time† (min)	86.3 ± 37.7	94.4 ± 39.7
Surgical indications*		
Inflammatory conditions	324 (57%)	54 (34%)
Acute traumatic and posttraumatic conditions	214 (38%)	96 (60%)
Other§	26 (5%)	9 (6%)
Duration of follow-up# (yr)	6.2 (0 to 25)	5.3 (0 to 20.3)

*The values are given as the number of total elbow arthroplasties, with the percentage in parentheses. †The values are given as the mean and the standard deviation. ‡The values are given as the number of total elbow arthroplasties. §Other includes primary osteoarthritis, resection of neoplastic lesion, hemophilic arthropathy, history of septic arthropathy, Charcot neuropathic arthropathy, and crystal deposition arthropathy. #The value is given as the median, with the range in parentheses.

TABLE E-2 Studies Published About the Effect of Obesity on Shoulder Arthroplasties

	Study	
	Singh et al. ^{26*}	Beck et al. ^{27*}
Cohort details	1431 humeral head replacements	76 reverse total shoulder arthroplasties performed in 23 normal-weight patients, 36 overweight patients, and 17 obese patients
Follow-up	Median, 5 yr (range, 1 day to 32 yr)	Range, 24 to 61 mo
Survivorship and/or revision	Higher BMI was significant risk factor for any revision surgery (hazard ratio, 1.04)*	—
Complications	—	Significantly more complications (p = 0.03) for obese patients (35%) than for normal-weight patients (4%): stroke, infection, instability, and glenoid loosening*
Clinical outcomes	—	No differences in postoperative VAS† pain level, active abduction, forward flexion, and external rotation
Radiographic outcomes	—	No differences in component loosening and scapular notching

*Results suggested inferior results in obese patients compared with non-obese patients. †VAS = visual analog scale.

TABLE E-3 Studies Published About the Effect of Obesity on Total Hip Arthroplasties

	Study		
	Jackson et al. ^{9*}	Jackson et al. ^{9*}	Chee et al. ^{8*}
Cohort details	2026 primary cementless total hip arthroplasties: 79.6% for non-obese patients (BMI of <30 kg/m ²) and 20.4% for obese patients (BMI of ≥30 kg/m ²)	Separate case-control study: 134 obese patients matched with 134 non-obese controls	Case-control study: 55 total hip arthroplasties in morbidly obese patients matched with 55 total hip arthroplasties in non-obese patients; cemented prostheses used
Follow-up	Mean, 6.3 yr (range, 0 to 11.71 yr)	Minimum 2 yr	Prospectively for 5 yr
Survivorship and/or revision	Survival from any revision at 11 yr: 96.7% for obese patients and 95.2% for non-obese patients	—	Survival from any revision at 5 yr: 90.9% for morbidly obese patients and 100% for non-obese patients*
Complications	—	—	There were significantly more complications ($p = 0.012$) for morbidly obese patients (22%) compared with non-obese patients (5%): superficial and deep infection, dislocation, and pulmonary embolism*
Clinical outcomes	—	Obese patients had lower values than non-obese patients in postoperative Harris hip score, flexion, adduction, and internal rotation*; there were no differences in abduction, external rotation, and overall satisfaction	Morbidly obese patients had lower scores than non-obese patients in postoperative Harris hip score and the Short-Form 36 score*
Radiographic outcomes	—	No differences in the acetabular or femoral components loosening, osteolysis, ingrowth of the femoral component, the acetabular inclination angle, and alignment of the femoral component	No differences in the acetabular or femoral components loosening rates
*Results suggested inferior results in obese patients compared with non-obese patients.			

TABLE E-4 Studies Published About the Effect of Obesity on Total Knee Arthroplasties

	Study		
	Spicer et al. ^{18*}	Amin et al. ²⁰	Kerkhoffs et al. ^{14*}
Cohort details	Case-control study: 326 total knee arthroplasties in obese patients matched with 425 total knee arthroplasties in non-obese patients	370 primary total knee arthroplasties subgrouped on the basis of overall BMI, BMI in female patients, and absolute body weight	Meta-analysis, systematic literature review of 20 studies reporting the presence of any infection in 14 studies (15,276 patients), deep infection in 9 studies (5061 patients), and revision for any reason in 11 studies (12,101 patients)
Follow-up	Mean, 75.9 mo (range, 48 to 144 mo)	Prospective at 6, 18, 36, and 60 mo	—
Survivorship and/or revision	Survival from any revision at 10 yr: 97.2% for obese patients and 95.5% for non-obese patients; no differences in revision rates	No differences in revision rates	Obese patients had a higher risk of revision surgery for any reason than non-obese patients (odds ratio, 1.30)*
Complications	—	No differences (perioperative mortality, superficial and deep infection, deep vein thrombosis, and number of revisions)	Obese patients had a higher risk of any infection (odds ratio, 1.90) and a higher risk of deep infection requiring surgical debridement (odds ratio, 2.38) than non-obese patients*
Clinical outcomes	No differences in absolute improvement of Knee Society score and function score	No differences in Knee Society score and function score	—
Radiographic outcomes	Morbidly obese patients had higher focal osteolysis rates than non-obese patients*; no differences in linear radiolucency rates	—	—
*Results suggested inferior results in obese patients compared with non-obese patients.			