

Obesity and Orthopedic Surgery

Obesity is a **complex metabolic disease**.¹



According to the American Academy of Orthopedic Surgeons, **obesity is a major contributor to many orthopedic conditions**.²

31.2%

of Americans with obesity have been diagnosed with arthritis.⁴ Ligament disruption is more common in patients with obesity⁵, and increased weight can activate mechanoreceptors in the cartilage. The increase of mechanoreceptors may create an overproduction of cytokines, growth factors, and more, which can cause chemical cartilage degradation.^{6,7}

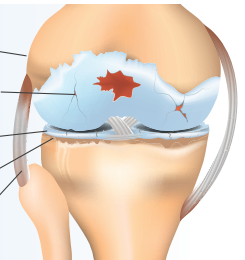
Synovial fluid changes³

Eroding cartilage

Eroding meniscus

Bone spurs

Lax ligaments



BMI Chart

		HEIGHT										
		5'0"	5'2"	5'4"	5'6"	5'8"	5'10"	6'0"	6'2"	6'4"		
WEIGHT (LBS)	120	23	22	21	19	18	17	16	15	15		
	130	25	24	22	21	20	19	18	17	16		
	140	27	26	24	23	21	20	19	18	17		
	150	29	27	26	24	23	22	20	19	18		
	160	31	29	28	26	24	23	22	21	20		
	170	33	31	29	27	26	24	23	22	21		
	180	35	33	31	29	27	26	24	23	22		
	190	37	35	33	31	29	27	26	24	23		
	200	39	37	34	32	30	29	27	26	24		
	210	41	38	36	34	32	30	29	27	26		
	220	43	40	38	36	34	32	30	28	27		
	230	45	42	40	37	35	33	31	30	28		
	240	47	44	41	39	37	35	33	31	29		
	250	49	46	43	40	38	36	34	32	30		
	260	51	48	45	42	40	37	35	33	32		
	270	53	49	46	44	41	39	37	35	33		
	280	55	51	48	45	43	40	38	36	34		
	290	57	53	50	47	44	42	39	37	35		
	300	59	55	52	49	46	43	41	39	37		
	310	61	57	53	50	47	44	42	40	38		
320	62	59	55	52	49	46	43	41	39			
330	64	60	57	53	50	47	45	42	40			
340	66	62	58	55	52	49	46	44	41			
350	68	64	60	56	53	50	47	45	43			

Patients with obesity are **3.8X** more likely to develop symptomatic osteoarthritis than individuals with a normal BMI. They also have an increased likelihood for both a hip and knee replacement.^{8,9}

The need for total knee arthroplasty is **8.5X** higher in patients with a BMI over 30 and **32X** in patients with a BMI over 40 than patients in a normal weight category.¹⁰

However, the cost for a knee arthroplasty is 110% higher for a patient with obesity¹¹, and obesity poses surgical risks that include¹²:

1.9X increased risk of SSI

2.38X increased risk of deep infection

1.3X increased risk of implant revision

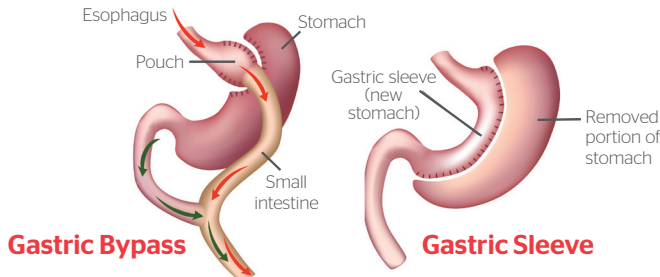
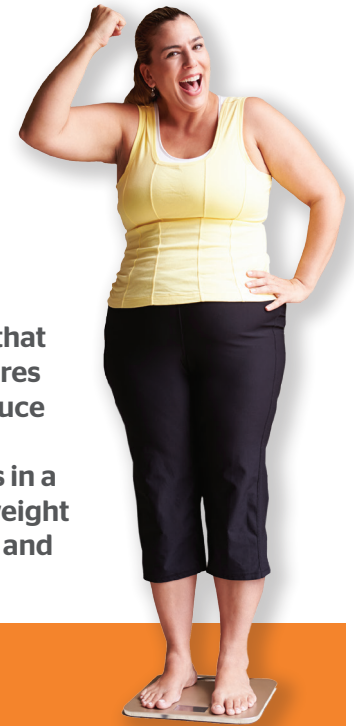
96% of surgeon respondents in a Canadian survey have delayed or declined to perform elective surgery in patients with a BMI higher than 38.¹³

One orthopedic surgeon stated that he turns away as many as 10% of his patients due to high BMI or diabetes.¹⁴



With many national and regional commercial insurance companies placing BMI restrictions on joint replacement surgery, and programs such as CJR bundled payments placing increased scrutiny on costs and outcomes, many patients with a BMI of 40+ are being denied joint replacement surgery.

Bariatric surgery is the most effective long-term treatment option for weight loss with qualified patients and may provide the best opportunity for lessening knee or hip pain or lowering BMI to qualify for joint replacement surgery.¹⁵



The anatomical changes that occur with these procedures have been shown to produce metabolic changes that "re-set" the gut hormones in a way that allows greater weight loss, especially WITH diet and exercise.¹⁶

In most patients, sleeve gastrectomy and gastric bypass surgeries produce excess weight loss of

+25% at 5 years.¹⁷

A lower BMI has been shown to lead to better joint replacement outcomes, including¹¹:

- ✓ Shorter anesthesia times
- ✓ Lowered infection rate
- ✓ Lower total operative times

Bariatric surgery may help patients to lose weight, resulting in a lower BMI. Post-bariatric surgery, osteoarthritis and joint disease decreased by 41%.¹⁸



Currently studies are underway to determine if this lower BMI post-bariatric surgery results in better knee replacement outcomes. Physicians will determine the period of time post-bariatric surgery before a patient is eligible to have joint replacement surgery. Bariatric surgery may also lead to health improvements that increase overall quality of life and decrease risk factors for joint replacement surgery such as a reduction of diabetes.

For more information, go to ethicon.com/obesity or consult with a local bariatric surgeon. To find a bariatric surgeon, go to REALIZE.com.

Bariatric surgery is used in morbidly obese adult patients for significant long-term weight loss. Results following bariatric surgery may vary. Bariatric surgery may be appropriate for some patients, and not for others depending on their specific weight, age, and medical history. Patients and doctors should review all available information on non-surgical and surgical options in order to make an informed treatment decision.

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