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## **Obesity and Musculoskeletal Health**

### **Impact of Obesity on Health**

Obesity is a major health epidemic. From 1960 to 2000, the rate of obesity more than doubled in the United States—from 12.8 percent to 30 percent. More than 60 percent of all Americans are now considered to be overweight or obese based on a BMI (body mass index) of 30 or more. Obesity related health care costs are approximately \$147 *billion* annually (2006). Obesity impacts many body systems, particularly the heart and lungs. Fatty infiltration of heart muscle can predispose to abnormal heart rhythms, and heart attacks. Obese individuals also have increased risk factors for coronary artery disease, hypertension, diabetes, and abnormal lipid profiles. Lung problems include sleep apnea, obstructive sleep apnea, shortness of breath, and poor exercise tolerance. Mortality rates are significantly higher for obese patients. These risk factors are magnified in obese patients undergoing orthopedic surgery.

### **Impact of Obesity on Musculoskeletal Health**

- Obesity directly and indirectly affects normal movement as well as exercise performance.
  - Effects on the heart and lungs can impair the ability to exercise.
  - The increased size of the limbs can directly impair normal movement.
- Added body weight can significantly increase the stress on weight bearing joints (hips, knees, ankles, spine).
  - The cartilage in the knee normally sees 6-7X body weight in stress when going down stairs. Carrying 100 extra pounds equates to 600-700 pounds of additional force on the cartilage, greatly accelerating break down of cartilage and development of arthritis.

### **Impact of Obesity on Orthopedic Surgery**

- Morbidity and mortality rates are higher in obese patients.



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- Complication rates are higher, including infection, non-healing fractures, persistent pain, and implant failure.
- Surgical equipment (tools, instruments, implants) may not accommodate the increased size encountered with obese patients.
- The operating table may not accommodate the weight of obese patients. X-ray, MRI, CT, and DEXA tables have weight limits that may not accommodate obese individuals.
- Surgical approaches may have to be altered or expanded, resulting in larger incisions, and more soft-tissue dissection.
- Anesthesia plans may need to be altered.

## Obesity and Joint Replacement

- Obesity substantially increases a patient's chances of needing a joint replacement. The chances of having a knee replacement are 8 times higher for patients with a BMI greater than 30—and 18 times higher for patients with a BMI of 35 or more.
- The morbidly obese have higher complication rates, may have more pain after surgery, and have a higher rate of infection and a higher loosening or failure rate that would result in revision. There is also a higher risk of component malpositioning. Complication rates increase as the BMI increases. The increase in obesity seems to have a greater effect on knee replacement patients compared to those requiring hip replacements.
- Obese patients, on average, do NOT lose weight after joint replacement, studies have shown. According to one study, patients *gained* an average of 2.5 pounds one year after joint replacement surgery.
- Surgical outcomes can markedly improve if the patient loses weight prior to surgery, according to several studies.
- Obesity has been shown to have a negative impact on clinical outcome.

## What Can You Do

- Begin weight loss efforts now.
- Options for weight loss:
  - Diet: Decreasing your caloric intake will prevent additional weight gain, and will ultimately result in weight loss. Consult with your primary care provider; see a Nutritionist.
  - Exercise: Increasing your caloric expenditure will prevent additional weight gain, and ultimately result in weight loss. Consult with your primary care provider to see if you can begin an exercise program; seek assistance from a physical therapist.



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- Counseling: There may be additional strategies that can make a weight loss program successful.
- Surgery: Bariatric (weight loss) surgery can have dramatic results in individuals who are candidates for it. Consider consultation with a Bariatric surgeon.