A look into the impact of obesity on weight bearing joints

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No Disclosures
Objectives

• Obesity a medical crises
• How obesity affects joints
• Treatments of joint pains
• Myths of arthritis
• Benefits of exercise and weight loss
• The Problem for Orthopedic professionals
• What can we do
Are we being over medicated?

- 'Let food be thy medicine, and medicine be thy food.'
  - Hippocrates
Statistics of Obesity

- Right now in the United States, about 32 percent of men and 35 percent of women are obese, a third of the population!
Coincidence? I think not!
Diabetes? A heart attack could be right around the corner.

Dollar McDonald's Menu

STRAIGHT AHEAD

Wireless Internet
Unbridled optimism about life

• "An overwhelming 79 percent feel they will not experience serious limitation until beyond age 70. We are delighted to know that Boomers have such high hopes, but they need to take decisive action now to turn those hopes into reality."
Youth is wasted on the young
What you eat in private, you wear in public.

What we do in our youth will show in our later years!
Claire Wang, assistant professor of health policy and management at Columbia University's Mailman School of Public Health and lead author of the paper, "Health and Economic Burden of the Projected Obesity Trends in the USA and the UK, which was published in the Lancet makes this statement. This report shows that as obesity goes up, so will the amount of money spent treating people who suffer from it. “In many cases being overweight at age 50 will not only double but actually triple or quadruple the incident rate for many diseases.”
Obesity related conditions cost

- The paper also showed, "Health and Economic Burden of the Projected Obesity Trends in the USA and the UK".

![Cost Burden of Obesity-Related Conditions to Society and Health Industry]

- Heart Disease: $8.8 billion
- Osteoarthritis: $21.2 billion
- Gallbladder Disease: $3.4 billion
- Type 2 Diabetes: $98 billion
- Hypertension (high blood pressure): $4.1 billion

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1. 17 percent of the total direct cost of heart disease, independent of stroke
2. Direct cost: $5.3 billion; Indirect cost: $15.9 billion
3. Direct cost: $3.2 billion; Indirect cost: $187 million
4. Direct cost: $4.1 billion—17 percent of the total cost of hypertension
Osteoarthritis

• Degenerative joint disease
• Most common type of arthritis
• Affects 23 million Americans, projected to affect 60 million by 2020*
• 50% of these people believe nothing can be done to help them
• Develops over time
  – Overuse, injury or repetitive movement
  – Developmental disorders
• Results in pain, stiffness
• **Influenced by body weight**
• Wear and tear condition

* Source: The Centers for Disease Control
“We are treating symptoms of a bigger disease”…~Jamel Jacobs-El MD PHD
Ill effects of extra weight on bones

- Increases wear
- Decrease life quality
- Bad surgery risk
- Increases need for further surgery
Arthritis Prevalence Increases With Body Weight

- Healthy Weight: 16.9%
- Overweight: 19.8%
- Obese: 29.6%

Nearly one third of all Americans are obese. This represents a 110% increase in the last 25 years. There is a strong association between obesity and arthritis. It is estimated that obesity is responsible for 200,000 joint replacement a year in the USA.
Size Matters

~Peter Pollack
The American Academy of Orthopedics

From 1997 to 2007, the number of total knee arthroplasty (TKA) procedures performed annually in the United States doubled, with much of the increase taking place in younger patients, according to a study presented at the 2011 AAOS Annual Meeting.

The rising number of TKA cases has been linked to a growing population and a rising national obesity epidemic.
Increase in number of total knee replacement surgeries, especially in younger adults, linked to obesity

ROSEMONT, Ill. - The number of total knee replacement (TKR) surgeries more than tripled between 1993 and 2009, while the number of total hip replacements (THR) doubled during the same time period. A study appearing in the June Journal of Bone and Joint Surgery (JBJS) found that an increase in the prevalence of overweight and obesity in the U.S. accounted for 95 percent of the higher demand for knee replacements, with younger patients affected to a greater degree. ~AAOS
Robert A. Malinzak, MD. conducted a retrospective review of 8,484 patients who had total knee replacements (TKR) or total hip replacements (THR). From the study population, 43 patients (0.51 percent) developed a deep infection—30 patients with TKR and 13 patients with THR. Morbidly obese patients with a body mass index (BMI) greater than 50 had a significant risk for deep infection. Odds of infection for patients whose BMI was greater than 40 were 3.2 times greater than for patients with a BMI under 40 (p=.0041).
“excess body weight appears to be more damaging to the knee than to the hip, the increasing prevalence of overweight and obesity may explain the growing demand for knee replacements over hip replacements.”
**Extra Weight = Extra Pain**

Pain and obesity go hand in hand according to a Gallup telephone survey of more than 1 million U.S. adults conducted between 2008-2010:

<table>
<thead>
<tr>
<th>Weight Category</th>
<th>Increased Rate of Pain*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>20%</td>
</tr>
<tr>
<td>Obese</td>
<td>68%</td>
</tr>
<tr>
<td>More Obese</td>
<td>136%</td>
</tr>
<tr>
<td>Most Obese</td>
<td>254%</td>
</tr>
</tbody>
</table>

*Increased rate of pain compared to people classified as low-normal weight.

People of both sexes who were overweight were much more likely to have had knee replacement surgery and the more overweight they were, the more likely it was. Men who were obese were five times more likely to have had a replacement knee and women four times more likely.

Data from The British Medical Journal
• Places extra stress on your joints\(^1\)
  – 3 pounds of pressure for every 1 pound of body weight
  – 150 pound person can place up to 450 pounds of pressure across each joint

• Accelerates rate of cartilage destruction\(^2\)

Obesity and osteoarthritis of the knee substantially affect the quality of life and life expectancy for millions of older Americans, according to a new study.

The results show that of the 86 million people aged 50 to 84 in the U.S., about 40% have osteoarthritis of the knee, are obese, or are obese and have knee osteoarthritis.

“These conditions result in 86 million quality-adjusted life-years lost among U.S. adults aged 50 to 84 years,” researcher Elena Losina, PhD, of Brigham and Women’s Hospital in Boston, and colleagues write in the Annals of Internal Medicine.

Researchers say obesity reduces life expectancy and quality of life by 12%, and osteoarthritis of the knee reduces both by an additional 12%.
Condyles

- Rounded protrusions
- Provide smooth rocking movement
- Help distribute the weight of the upper body
- Single condyle is called unicondylar or unicompartmental
Cartilage

• Covers bones in joint
• Lubricating tissue
• Cushions and protects the ends of bones
• Smooth gliding surface for bones
What do X Rays tell us?
X-Ray Findings

- Alignment
  - Angulation
    - Varus
    - Valgus
  - Joint space
    - Narrow
    - Bone contact
    - Rotated
- Defects
  - Spurs
  - Osteophytes
  - Grade of wear 1-4

Space shows healthy cartilage
Arthritic Knee X-ray

Can anyone tell me what this X-ray shows?

What do you think of this?
Knee MRI
Valgus AKA Knock Knees

Sometimes you don’t really need an X-Ray
The Process

- Begins as small area
- Eventually results in bone-on-bone contact
- Results in swollen, painful and stiff joints
Tires wear out and so do our joints.
Common Myths

+ Myth 1 – It's a result of walking on concrete at work.
+ Myth 2 – There's nothing you can do about it anyway; you just have to live with it.
+ Myth 3 – I'm big boned and that's my problem.

"You're not big-boned, you're little-exercised."
Most gain weight after a Total

• Once obese patients have a joint replacement, do they lose weight? Though many obese patients say they will lose weight following a joint replacement, the statistics do not support that claim.
• According to one study, patients gained an average of 1.2 kilograms (kg) one year after joint replacement surgery.
• “If the BMI was 25 to 30, the patients gained an average of 3.6 kg, which is much more than the weight of the implant. says Dr. Masri.
Treatment Options

+ Physical Therapy
+ Physical Activity
+ Weight Loss
+ Injection
+ Yoga
+ Surgery
Physical Activity

- Physical Activity is the Arthritis Pain Reliever
- Scientific studies show moderate-intensity, low-impact physical activity improves pain, function, mood, and quality of life without worsening symptoms or disease severity
- Being physically active can also delay the onset of disability
- Both aerobic conditioning and muscle strengthening work well
The talk

- When a patient makes a dozen excuses for why it's hard to fit exercise into a busy workday, physicians will make more progress if they refrain from saying, "Nonsense," and opt instead for, "O.K., so it sounds like you're having trouble finding time for a workout."
Excuses won't help it!
Exercise Nourishes Cartilage

- Extremely beneficial
- Keeps bones strong
- Keeps joints limber
- Strengthens muscles
- Helps prolong life of joints
Types of Exercise if you have knee pain

- Walking
- Swimming
- Bicycling
- Water aerobics
- Work with physical therapist
Medications

- **Anti-Inflammatory**
  - Ibuprofen: Advil, Aleve, Motrin,
  - Celebrex
- **Pain Relievers**
  - Acetaminophen: Tylenol
- **Glucosamine and Chondroitin**
- **Side Effects**
Glucosamine and Chondroitin

- Building block of cartilage
- May be useful in strengthening and repairing cartilage
- Some say it is a good pain reliever
- Does *not* rebuild cartilage
- *Not* a cure
- Effectiveness however are questionable
Injections

- Steroids
  - Pain and swelling
  - Effects are not long-lasting
- Lubrication with Hyaluronic Acid
  - Acts as lubricant and shock absorber
  - New and long-term effects not studied yet
- Injection process and typical number performed
Surgical Options

- Arthroscopy
- Joint Replacement
Arthroscopic Surgery

Normal Healthy Cartilage
Cartilage Loss = Joint Pain

Moderate Cartilage loss

Major Cartilage loss
Exposed bone

Fat
Technically Challenging
When is Joint replacement necessary?

- Conservative treatments fail to provide relief
- Diminished quality of life
- After discussing with orthopedic surgeon
- After deciding what is best for you
Approximately 581,000 knee replacements are performed each year in the United States.
Increased risk of 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.”

~Bas A. Masri, MD FRCSC.
What is joint replacement?

- Also called “arthroplasty”
- Implants to resurface damaged bone and cartilage
- Metal alloy and durable plastic
Partial Knee Replacement

- Uni
How it's made.

Click here.
What is Minimally Invasive?
Surgery is NO JOKE!

TERROR
When this is the last thing you see before your surgery
Complications

- Infection
- Blood clots
- Implant failure/malposition
- Malalignment (High risk in obesity)
  - Premature wear
  - Life of implant
- Other factors can affect longevity
Prosthesis failure rates vary substantially across studies; factors associated with shortened time to prosthesis failure include age younger than 55 years, male gender, diagnosis of OA, obesity, and presence of comorbid conditions.
Obesity: A Musculoskeletal Nightmare

“The morbidly obese have higher complication rates, may have more pain after surgery, and have a higher rate of infection and a higher loosening, mal-positioning and failure rate that would result in revision. The increase in obesity seems to have a greater effect on knee replacement patients compared to those requiring hip replacements,” says Dr. Masri of AAOS
What should we do?
Should we take the Dr. Phil approach

Could the same be true for **overweight** patients as it is for smokers? If physicians merely told their patients that they were **overweight** or **obese**, would that lead to greater weight loss?
Never told they were overweight

- Researchers analyzed data on roughly 5,500 people between 2005 and 2008. One-third of the obese participants and 55% of overweight participants had never been told by a doctor that they were overweight.
Obesity is the Doctors fault!!!

Doctors' Weight Loss Advice to Patients Is All in the Delivery

By JEFFREY KLUGER Tuesday, October 5, 2010

At last it can be confirmed: The fact that you haven't been able to lose weight is actually ... your doctor's fault. Sort of.
Telling Patients They Are **Overweight** or **Obese**: An Insult or an Effective Intervention?

Comment on "The Influence of Physician Acknowledgment of Patients' Weight Status on Patient Perceptions of **Overweight** and Obesity in the United States"

Robert B. Baron, MD, MS

The power of making the comment

- If a doctor did comment on a patient's weight, it seemed to make an impression.
- Nearly 20% of obese people whose doctors hadn't brought up their weight described themselves as "not overweight," compared with just 3% of those whose doctors had addressed their weight.
- Obese and overweight patients who discussed the issue with doctors were also more than twice as likely to have tried to lose weight in the previous year.
Thick, curvaceous, big boned, grown and sexy but not fat

DELUSION
The researchers weren't surprised by the high percentage of overweight people who thought their weight was normal, as several studies in recent years have found comparable -- or higher -- rates. A study published last year showed that 23% of overweight women and 48% of overweight men considered their weight to be just right.

Robert Post, M.D., research director of the Virtua Family Medicine Residency in Voorhees, New Jersey.
Jennifer Hudson
Spokesperson for Weight Watchers

• I never thought I was overweight. I thought my old look was pretty normal. That was how all the girls looked growing up in Chicago. I didn’t have any problem with it.
• Last week I saw some footage of myself as I was five years ago and I was surprised. It was like I recognized myself but I didn’t.
Although it might seem obvious that excess weight is unhealthy, being reminded of this by a doctor can be an effective wake-up call, says Robert B. Baron, M.D., director of the weight management program at the University of California San Francisco.
Why providers don’t talk about it

- Doctors may be reluctant to approach the subject of weight for a number of reasons. One may be because busy physicians might not want to fall behind schedule, another may be because of lack of training in this area or fear of the patients giving negative comment on survey.
So what can we do to help?
Set better examples!

Ernestine Shepherd  **OVER 75** years old
Walk the walk!

“So good to see a medical provider being healthy. I swear some of them you’er like, "uhmmm do you follow the advice you are giving me??"

~Zakia
Patient
Would you want him to be your Dentist?
How about having this Doctor telling you to lose weight?
Eat Smart
Food Prep
Little tips that give big results

- Eat breakfast regularly, often including whole grains and low-fat dairy products.
- • Limit dining out to an average of three times a week, and fast food to less than once a week.
- • Eat similar foods often and don't splurge much.
Simple Tips

- Include 1gm of protein per pound of ideal weight
- Portion control
- Incorporate weight training
- Intensify your cardio workout
- 6 small meals a day
- No carbs after 4PM
- Eliminate sugar and white carbs
- Weekly food prep
Find something you enjoy and do it!
MISSION POSSIBLE

• Morning Tony. I just wanted to tell you i put on a pair of jeans and a t-shirt. And my body has changed sooo much. I've been on diets but my god man. I can't tell you how much my body has changed. I never knew that being fit was so different than being skinny, I always thought I'd be happy skinny but knowing what I know now I'm in love with myself for being fit. Thank you for that gift.

You have saved my life. I was headed down the path of destruction. 73 days sober, and looking good as all get out, because of you. Have a great day my man….~Beth
Thank You!