OBESITY MEDICINE
Best Practice Approach In Primary Care Setting

Dr. Matija Burtis, DO
Medical Director, St. Mary’s Weight Management Program
OBESITY MEDICINE: Objectives

- Brief overview of the current line of thinking in obesity medicine
- Review the current ACE algorithm for obesity care
- Review some less obesogenic medication options
- My suggestions for “Best Practice” in obesity care and when to refer.
MODIFIABLE FACTORS THAT IMPACT ENERGY REGULATION

• Weight promoting medication
• Diet quality and structure
• Activity
• Stress
• Sleep Circadian patterns
THE CONCEPT OF ENERGY BALANCE IS NO LONGER EXCEPTED

By the laws of physics...

- Food Intake
- Energy Expenditure

From Dr. Lee Kaplan, Blackburn Lecture 2016
## ENERGY BALANCE

<table>
<thead>
<tr>
<th>Purposeful behavior</th>
<th>The physiological regulation of energy balance</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>drives</em> the physiology of energy balance regulation</td>
<td><em>drives</em> behavior</td>
</tr>
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</table>

**Implications**

- Increased caloric intake drives weight gain
- All calories have similar effects
- Calories burned during physical activity drive weight loss

**Implications**

- Changes in the modern diet alter physiology
- The chemical nature of the calories is critical
- Re-regulation of abnormal physiology is essential for success
The Body Seeks a Stable Adipose Tissue Mass

Similar to other regulated tissue mass

- Liver
- Red blood cells

From
Dr. Lee Kaplan,
Blackburn Lecture 2016
## Defense of a Fatmass “Setpoint”

### Obesity and Its Care: A Battle of Forces that Influence the Fat Mass Set Point

<table>
<thead>
<tr>
<th>Lifestyle Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy diet</td>
</tr>
<tr>
<td>Regular physical activity</td>
</tr>
<tr>
<td>More and better sleep</td>
</tr>
<tr>
<td>Stress reduction</td>
</tr>
<tr>
<td>Stable eating patterns</td>
</tr>
<tr>
<td>Weight stabilizing alternatives</td>
</tr>
</tbody>
</table>

- **Body fat mass set point**

### Years of Exposure

- Abnormal dietary constituents
- Unhealthy muscle
- Sleep deprivation
- Stress
- Disrupted circadian rhythms
- Weight gain inducing medications

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From Dr. Lee Kaplan, Blackburn Lecture 2016
TREAT WEIGHT FIRST

Treat Weight First - Then Comorbidities

Solution for medically-induced weight gain: early identification of those at risk for weight gain and early avoidance of those meds so that we never have to be at the point of dealing with the weight gain.

**Old Treatment Paradigm**

<table>
<thead>
<tr>
<th>Dyslipidemia</th>
<th>HTN</th>
<th>IGT</th>
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<tbody>
<tr>
<td>Monitor</td>
<td>Lipid panels, Lipoproteins subsets</td>
<td>Blood Pressure, Ambulatory Blood Pressure</td>
</tr>
<tr>
<td>Diet</td>
<td>↓ Total fat, ↓ Chol, ↑ Fiber</td>
<td>↓ Sodium</td>
</tr>
<tr>
<td>Meds</td>
<td>Statins, Fibroics, Resins, Niacin</td>
<td>Central acting, Renal effective, Peripherally acting diuretics</td>
</tr>
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**New Treatment Paradigm**

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<td>Lipid panels, Lipoproteins subsets</td>
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<tr>
<td>Diet</td>
<td>↓ Sat + trans fat, ↑ Omega-3s, ↑ MUFA</td>
<td>↓ Sodium, ↓ ETOH</td>
</tr>
<tr>
<td>Exercise</td>
<td>150 minutes of moderate-intensity aerobic activity/wk and muscle-strengthening activities on ≥ 2 days/wk</td>
<td></td>
</tr>
<tr>
<td>Meds</td>
<td>Orlistat, phentermine, phentermine/topiramate, lorcaserin, naltrexone/bupropion, lixisnide</td>
<td></td>
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**Overweight/Obesity**

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<td>Meds</td>
</tr>
</tbody>
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**From**

Apoian, J Clinical Endocrinology and Metabolism, Feb 2015
WHAT HAPPENS AFTER DIET INDUCED WEIGHT LOSS?

• The body fights to regain
• Hunger and cravings are worse
• Gut hormones are upregulated or down regulated to promote weight regain, ie: GLP-1, CCK, and PYY all go down after diet induced weight loss.
OBESITY AND ITS CARE:

AACE/ACE 2015 Guidelines

Overweight/Obesity Treatment Algorithm

STEP 1
EVALUATION FOR COMPLICATIONS AND STAGING

CARDIOMETABOLIC DISEASE

NO COMPlications
BMI 25–26.9, or BMI ≥ 27

BIOMETABOLIC COMPlications
BMI ≥ 27 WITH COMPLICATIONS
Stage Severity of Complications
LOW MEDIUM HIGH

STEP 2
SELECT:

Therapeutic targets for improvement in complications + Treatment modality + Treatment intensity for weight loss based on staging

Lifestyle Modification: MD/RD counseling; web/remote program; structured multidisciplinary program

Medical Therapy: phentermine; orlistat; lorcaserin; phentermine/topiramate ER; naltrexone/bupropion; lixisenatide

Surgical Therapy (BMI ≥ 35): Lap band; gastric sleeve; gastric bypass

STEP 3
If therapeutic targets for improvements in complications not met, intensify lifestyle and/or medical and/or surgical treatment modalities for greater weight loss


St. Mary's Regional Medical Center
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**Suggested Approach**

<table>
<thead>
<tr>
<th>BMI OF 27 AND COMORBIDITIES OR BMI OVER 30</th>
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<tr>
<td><strong>Primary Care</strong></td>
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</table>

**Reevaluate monthly**

*After 3 months, should see 5% reduction in weight*

| **Primary Care** | **Change plan if goal is not met** |

**Consider refer to Multidisciplinary Team, if plan not working, or BMI is over 30 with Comorbidities**

| **Medical Weight Management** | **High Intensity, Medication, Meal Replacements, Refer to Bariatric Surgery from here if plan is not working.** |
WHAT CAN BE DONE IN PRIMARY CARE?

- Begin the discussion and develop a plan
- F/U to evaluate progress
- Revise medication list/choose weight neutral or weight reducing options when ever possible.
- Consider weight loss medication when lifestyle intervention is not working
- Don’t forget about Binge eating disorder
PATIENT MUST HAVE 3 OF THE FOLLOWING:

• Recurrent episodes of eating abnormally large amounts of food
• Perceived lack of control
• Remorse
• Frequency: once per week for at least three months
• Not associated with compensatory behaviors
• Can we talk about your weight today?
• What are your thoughts about your weight?
• Listen
• When you have tried to lose weight, what has been successful?
• Would you like my help?
Help Patients Develop Their Plan

• **Food Diary:** “MyFitness Pal, Calorie King

• **Dietary Modification:** Calorie reduction, Low carbohydrate, low fat.

• **Questions about binge eating**

• **Follow-up Monthly**
  
  – If not achieving 5% weight loss in 3 month, consider changing medication to less obesogenic alternative, adding weight loss medication, or referral to medical weight loss program if **BMI is over 30**, referral to medical weight loss program or surgical weight loss program if **BMI is over 40**.
Insulin Resistance

Acanthosis Nigricans, Skin Tags, Elevated Triglycerides and low HDL
Common medications can alter energy regulation

Medications that promote weight gain

CNS drugs
- Atypical Antipsychotics: eg. olanzapine
- Anti-epileptics: eg. valproate
- Lithium

Endocrine agents
- Glucocorticoids: eg. prednisone
- Hormonal contraceptives: eg. medroxyprogesterone

Diabetes agents
- Insulin
- Sulfonylureas: eg. glyburide
- Thiazolidinediones: eg. pioglitazone

Miscellaneous
- Beta blockers: eg. metoprolol
- Antihistamines: eg. diphenhydramine
- Sleep aids: eg. zolpidem

**DIABETES:**

**Avoid** - Sulfonylureas, Glitazones, and Insulin

**Recommend** - Metformin, GLP-1 receptor agonists and SGLT-2 inhibitors, DPP-4 inhibitors, Pramlitide (Amylin Analog). If Insulin is required, basal insulin over combination insulin
Avoid - Beta-blockers and alpha blockers

Recommend - ACE, ARB, CA channel blockers, and possibly diuretics

• **Beta blockers are lipogenic.** Decrease BMR 5-10%. They reduce post prandial thermogenesis. They also reduce exercise tolerance-fatigue easier.

• **Meta-analysis 9 RCT’s:** B-blocker head to head with ACE. Blocker groups gained 1-3 kg over 6-12 months

• Beta blocker equivalent to placebo in primary prevention (40,000 patients, Cochrane Review)
<table>
<thead>
<tr>
<th>Interventions</th>
<th>Expected HbA1c Improvement (%)</th>
<th>Weight Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions Associated with Weight Gain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulin</td>
<td>1.5-2.5</td>
<td>2-10 kg weight gain</td>
</tr>
<tr>
<td>Sulfonylureas</td>
<td>1-2</td>
<td>1-5 kg weight gain</td>
</tr>
<tr>
<td>Meglitinide Analog</td>
<td>0.5-1.5</td>
<td>0.5-2 kg weight gain</td>
</tr>
<tr>
<td>TZD</td>
<td>0.5-1.4</td>
<td>1.5-4.8 kg weight gain</td>
</tr>
<tr>
<td><strong>Interventions that are Weight-neutral or Associated with Weight Loss</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle Modification</td>
<td>1-2</td>
<td>Initial weight loss; 1-2 kg gain over time</td>
</tr>
<tr>
<td>Metformin</td>
<td>1-2</td>
<td>0.5-4.5 kg weight loss</td>
</tr>
<tr>
<td>A-Glucosidase Inhibitors</td>
<td>0.5-0.8</td>
<td>0.5-2 kg weight loss</td>
</tr>
<tr>
<td>GLP-1 Receptor Agonist</td>
<td>0.8-1.5</td>
<td>1-3 kg weight loss (dose dependent)</td>
</tr>
<tr>
<td>DPP-4 Inhibitor</td>
<td>0.5-1.2</td>
<td>+ &lt; 1 kg</td>
</tr>
<tr>
<td>Amylin Analog</td>
<td>0.5-1</td>
<td>0.4-1.4 kg weight loss with insulin or oral hypoglycemic agents</td>
</tr>
</tbody>
</table>
MIGRAINES:
Avoid- beta-blockers and TCA’s
Recommend- Topiramate

ANTIPSYCHOTICS:
Avoid- olanzipine (Zyprexa), chlorpromazine (Thorazine), and quetiapine (Seroquel), Lithium
Recommend- molindone (Moban), lurasidone (Latuda), ziprasidone (Geodon).
DEPRESSION:

**Avoid**- paroxetine(Paxil), mirtazapine(Remeron), citalopram (Celexa), escitalopram(Lexapro), venlafaxine (Effexor), duloxitine (Cymbalta), fluoxetine (Prozac)

**Recommend**- buproprion (Welbutrin), sertraline (Zoloft), fluoxetine (Prozac).
Drugs Commonly Associated with Weight Change: Meta-Analysis

<table>
<thead>
<tr>
<th>Weight Gain associated with:</th>
<th>Weight Loss associated with:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Amitriptyline (1.8 kg)</td>
<td>• Metformin (1.1 kg)</td>
</tr>
<tr>
<td>• Mirtazapine (1.5 kg)</td>
<td>• Acarbose (0.4 kg)</td>
</tr>
<tr>
<td>• Olanzapine (2.4 kg)</td>
<td>• Miglitol (0.7 kg)</td>
</tr>
<tr>
<td>• Quetiapine (1.1 kg)</td>
<td>• Pramlintide (2.3 kg)</td>
</tr>
<tr>
<td>• Risperidone (0.8 kg)</td>
<td>• Liraglutide (1.7 kg)</td>
</tr>
<tr>
<td>• Gabapentin (2.2 kg)</td>
<td>• Exenatide (1.2 kg)</td>
</tr>
<tr>
<td>• Tolbutamide (2.8 kg)</td>
<td>• Zonisamide (7.7 kg)</td>
</tr>
<tr>
<td>• Pioglitazone (2.6 kg)</td>
<td>• Topiramate (3.8 kg)</td>
</tr>
<tr>
<td>• Glimepiride (2.1 kg)</td>
<td>• Bupropion (1.3 kg)</td>
</tr>
<tr>
<td>• Gliclazide (1.8 kg)</td>
<td>• Fluoxetine (1.3 kg)</td>
</tr>
<tr>
<td>• Glyburide (2.6 kg)</td>
<td></td>
</tr>
<tr>
<td>• Glipizide (2.2 kg)</td>
<td></td>
</tr>
<tr>
<td>• Sitagliptin (0.55 kg)</td>
<td></td>
</tr>
<tr>
<td>• Nateglinide (0.3 kg)</td>
<td></td>
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</table>

Clinically important weight change (for either weight gain or loss) as a change >2 kg or >5% from the baseline, defined by: Stevens J, et al. Int J Obes (Lond). 2006;30:391–399.

Norethindrone (1st generation)
  - Estrostep
  - Loestrin

Levonorgestrel (2nd generation)
  - Allesse
  - Levlite

Norgestimate (3rd generation)
  - Ortho Cyclen & Ortho Tri-Cyclen
  - Ortho Evra patch

From
Sharma AM. Hypertension. 2001
Medroxyprogesterone acetate (Depo-Provera)
RCT 500 adolescent females followed for 5 years
- Depo-Provera - 6.2kg weight gain
- OCP - 2.3kg weight gain
- Non-users - 2.8kg weight gain

Beksinska ME.
Contraception. 2010.
How about levonorgestrel IUD vs copper IUD

- RCT on 76 women followed over 12 months for weight and body composition (DEXA)
- LNG-IUD- 2.9 kg gain (2.5% fat mass gain)
- Cu-IUD- 1.4 kg gain (1.3% fat mass loss)

Dal'Ava NL. Contraception. 2012.
Avoid: Depo-Provera, Mirena, BCP with 1\textsuperscript{st} and 2\textsuperscript{nd} generation progestins

Recommend: BCP with 3\textsuperscript{rd} generation Progestin
• Expect 5% weight loss at 3 month mark, if plan is successful
• If no success, change plan or refer
• If no resource, rally the troops and make one
CRITERIA FOR REFERRAL

- BMI of 27 and one obesity related Co-morbidity, after moderate intensity in office approach fails
- Most Insurance Plans will only pay for High Intensity Programs when BMI is over 30
- Consider referral to Medical Program or Surgical Program when BMI over 40
Multi-Disciplinary High Intensity Approach

- Initial visit with Obesity Medicine Specialist
- Registered Dietitian trained in weight management
- Behavioral Specialist: group/individual
- Exercise Specialist
- Metabolic Testing
- Nurse visits
- High Intensity: see patient weekly or every other week
- Meal Replacements and Weight Loss Medication
Maintenance

- Maintenance Group monthly
- Provider visits every quarterly
- Medication
- Back into active weight loss program if regains more than 5 pounds.

CONCLUSION:

- The disease of obesity is not a matter of energy in vs. energy out.
- The body will defend its set point and which forces are at play in this defense varies from patient to patient.
- Medication choices play a large role when a set point is very rigid.
- Don’t forget about binge eating disorder and insulin resistance.
- Consider referral for your obese patients when your plans are not working.
Thank You