

Morbid Obesity... What to do

An Overview of Weight Loss Surgery

Rocky Mountain Weight Loss Surgery

M. Whitney Parnell MD FACS



Definition of Obesity

>30 % above ideal body weight

Source: American Society of Bariatric Surgery (ASBS)

Wyoming data

BMI_≥40

Pop.

Est. pop

BMI_≥40


Cheyenne 53,925

1,618

Wyoming 440,498
minus Cheyenne

13,214

14,832

	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
4'5"	30	33	35	38	40	43	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80	83
4'6"	29	31	34	36	39	41	43	46	48	51	53	56	58	60	63	65	68	70	72	75	77	80
4'7"	28	30	33	35	37	40	42	44	46	49	51	53	56	58	60	63	65	67	70	72	74	77
4'8"	27	29	31	34	36	38	40	43	45	47	49	52	54	56	58	61	63	65	67	69	72	74
4'9"	26	28	30	32	35	37	39	41	43	45	48	50	52	54	56	58	61	63	65	67	69	71
4'10"	25	27	29	31	33	36	38	40	42	44	46	48	50	52	54	56	59	61	63	65	67	69
4'11"	24	26	28	30	32	34	36	38	40	42	44	46	48	50	53	55	57	59	61	63	65	67
5'0"	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	62	64
5'1"	23	25	26	28	30	32	34	36	38	40	42	43	45	47	49	51	53	55	57	59	60	62
5'2"	22	24	26	27	29	31	33	35	37	38	40	42	44	46	48	49	51	53	55	57	59	60
5'3"	21	23	25	27	28	30	32	34	35	37	39	41	43	44	46	48	50	51	53	55	57	58
5'4"	21	22	24	26	27	29	31	33	34	36	38	39	41	43	45	46	48	50	51	53	55	57
5'5"	20	22	23	25	27	28	30	32	33	35	37	38	40	42	43	45	47	48	50	52	53	55
5'6"	19	21	23	24	26	27	29	31	32	34	36	37	39	40	42	44	45	47	48	50	52	53
5'7"	19	20	22	23	25	27	28	30	31	33	34	36	38	39	41	42	44	45	47	49	50	52
5'8"	18	20	21	23	24	26	27	29	30	32	33	35	36	38	40	41	43	44	46	47	49	50
5'9"	18	19	21	22	24	25	27	28	30	31	32	34	35	37	38	40	41	43	44	46	47	49
5'10"	17	19	20	22	23	24	26	27	29	30	32	33	34	36	37	39	40	42	43	44	46	47
5'11"	17	18	20	21	22	24	25	26	28	29	31	32	33	35	36	38	39	40	42	43	45	46
6'0"	16	18	19	20	22	23	24	26	27	28	30	31	33	34	35	37	38	39	41	42	43	45
6'1"	16	17	18	20	21	22	24	25	26	28	29	30	32	33	34	36	37	38	40	41	42	44
6'2"	15	17	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39	40	41	42
6'3"	15	16	17	19	20	21	22	24	25	26	27	29	30	31	32	34	35	36	37	39	40	41
6'4"	15	16	17	18	19	21	22	23	24	26	27	28	29	30	32	33	34	35	37	38	39	40
6'5"	14	15	17	18	19	20	21	23	24	25	26	27	28	30	31	32	33	34	36	37	38	39
6'6"	14	15	16	17	18	20	21	22	23	24	25	27	28	29	30	31	32	34	35	36	37	38
6'7"	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	30	32	33	34	35	36	37
6'8"	13	14	15	16	18	19	20	21	22	23	24	25	26	27	29	30	31	32	33	34	35	36
6'9"	13	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	30	31	32	33	34	35
6'10"	 13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	35

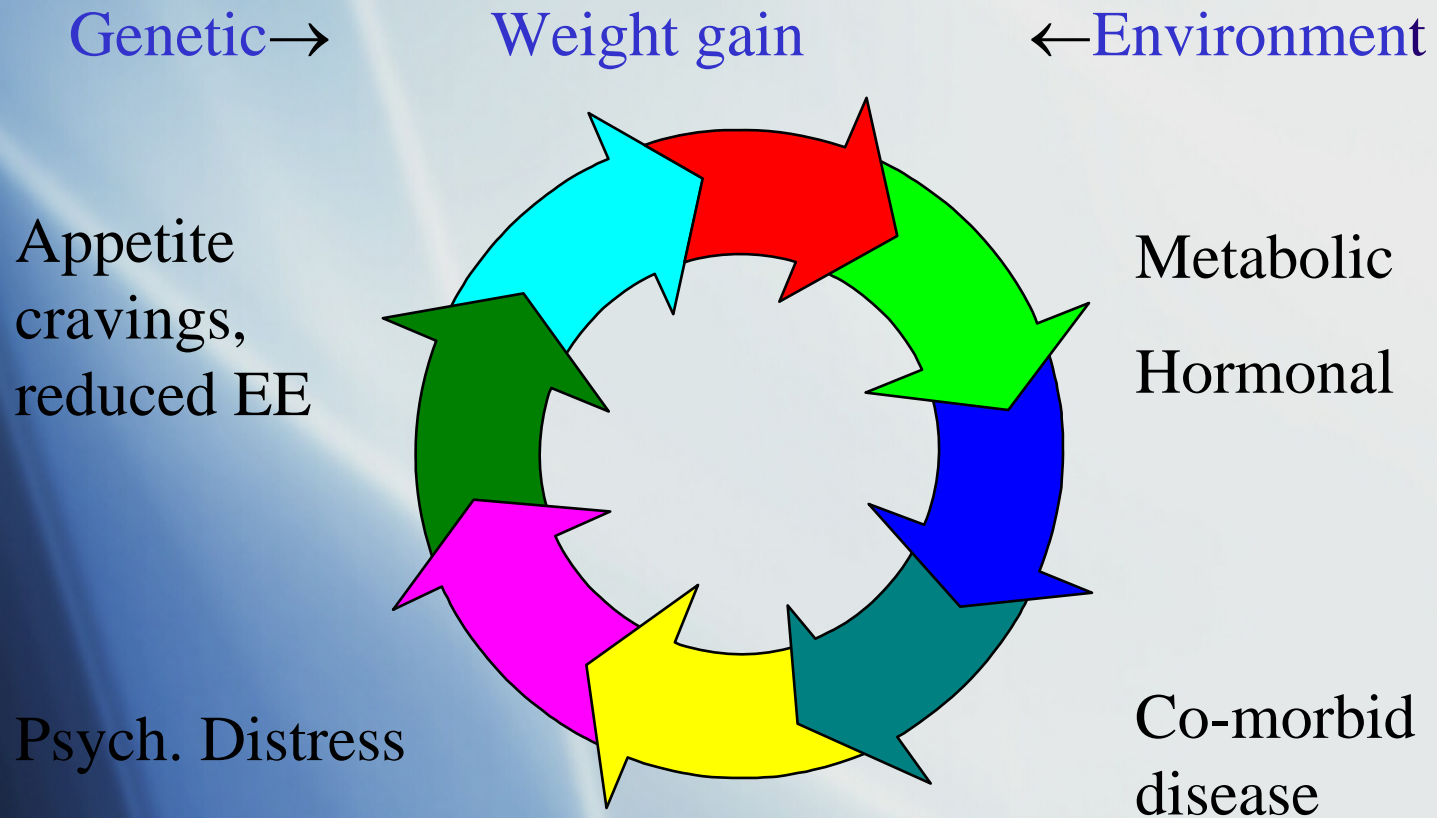
*BMI classifications**

20 to 25	normal
25-30	overweight
> 30	obese
> 35	Severe obesity
> 40	Morbidly obese
> 50	Super obese

Morbid obesity is a disease

- Genetic predisposition
- Inborn error of metabolism
 - Impaired satiety mechanism
 - Abnormal fat metabolism
 - Abnormal conversion of ingested calories to fat

Weight Gain Cycle



NIH Consensus

- The ultimate biologic basis of severe obesity is **unknown**, and
- **specific** therapy is not available.

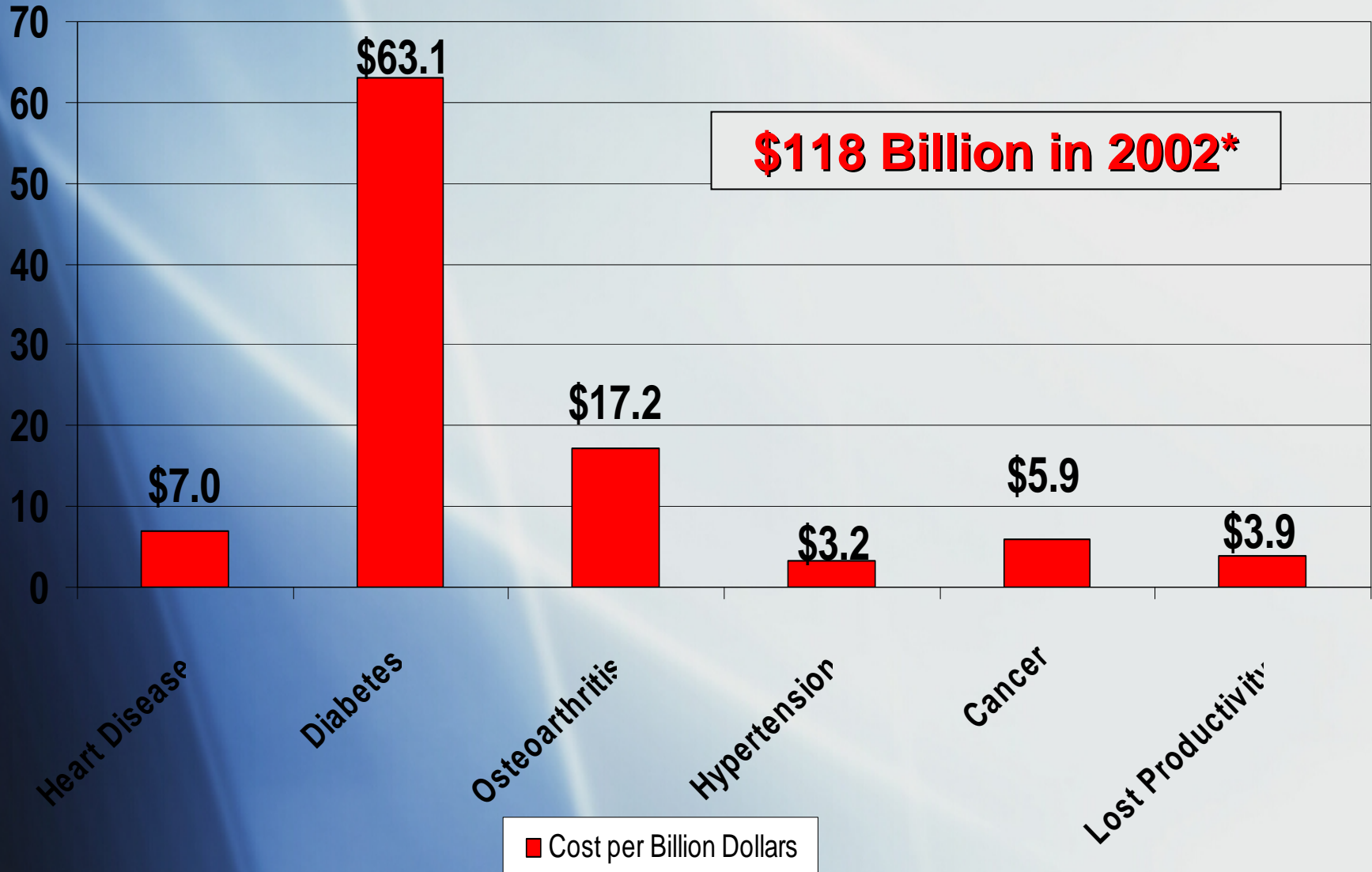
NIH Consensus

This disorder is accompanied by a reduction in life expectancy, due in large part to significant Co-morbid associations in the form of metabolic abnormalities and several serious cardiopulmonary disorders.

Co-Morbid Medical Conditions

- Diabetes
- Hypertension
- Hyperlipidemia
- Cardiac Disease
- Sleep Apnea
- Osteoarthritis
- Heartburn (GERD)
- Depression
- Stress Incontinence
- Menstrual Irregularity
- Increased cancer risk

Total Cost of Morbid Obesity ~ \$99.2 Billion in 1995



Diabetes

- 16 million Americans suffer from Type II Diabetes (80% are obese)
- 1/3 don't know they have it
- As little as 30% loss of excess body weight will improve diabetes
- 75-95% improvement or resolution after WLS
- WLS is the only known “cure” for diabetes

Hypertension

- BMI > 40 two fold increase risk of HTN
- 75-92% resolution or improvement with WLS

GERD

- Obesity is a leading cause
- Powerful medicines available OTC
- Associated with 50% of adult onset asthma
- WLS relieves most symptoms

Sleep Apnea

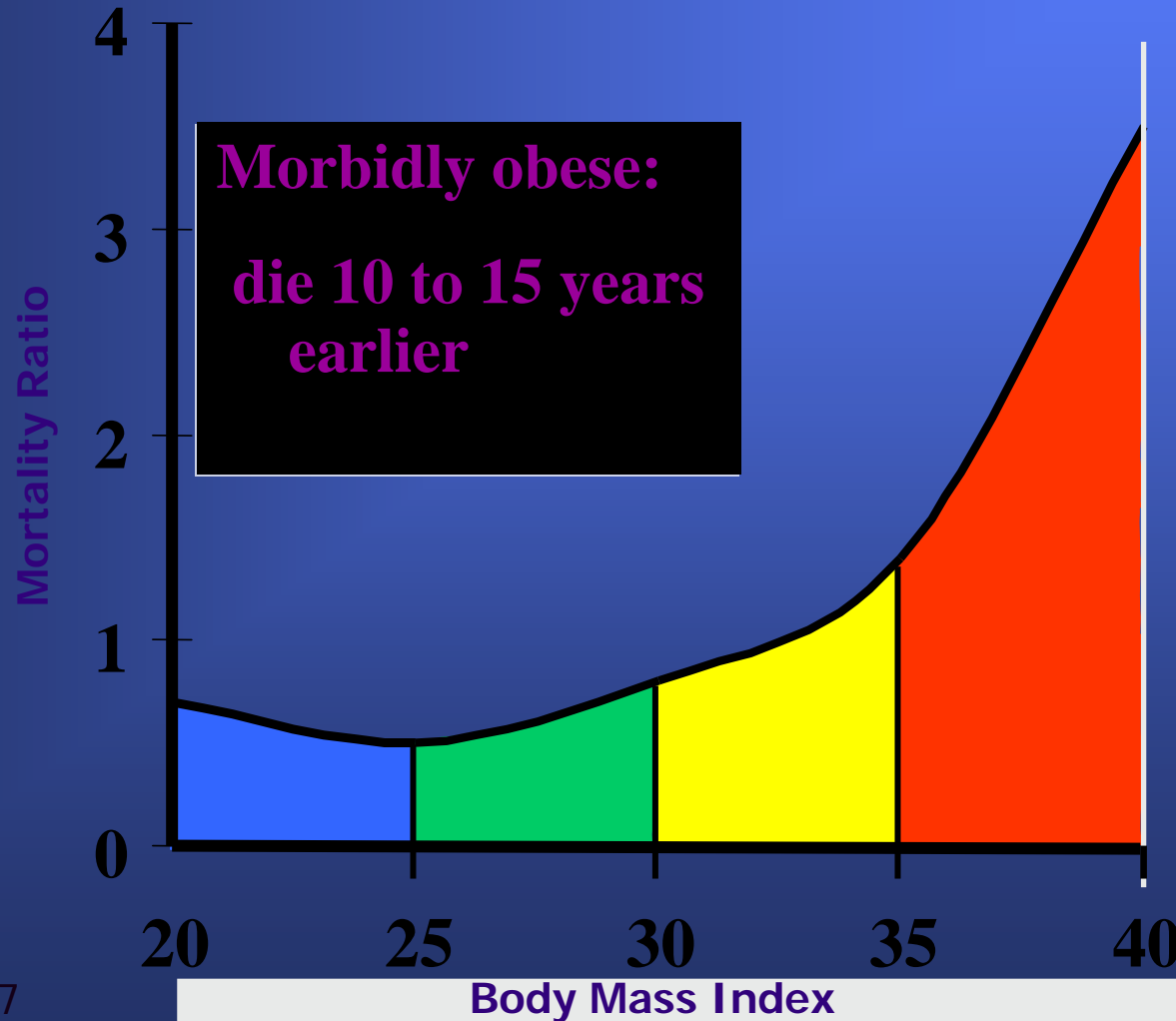
- Most dangerous consequence of obesity
- Diagnosed with a sleep study...or just ask your sleeping partner
- Leads to Right Heart strain
- EKG changes seen early
- 85% of patients relieved of symptoms

Risk of death

- 275,00 to 325,000 Americans **DIE** each year of obesity related diseases
- (400,00 die of smoking related diseases)

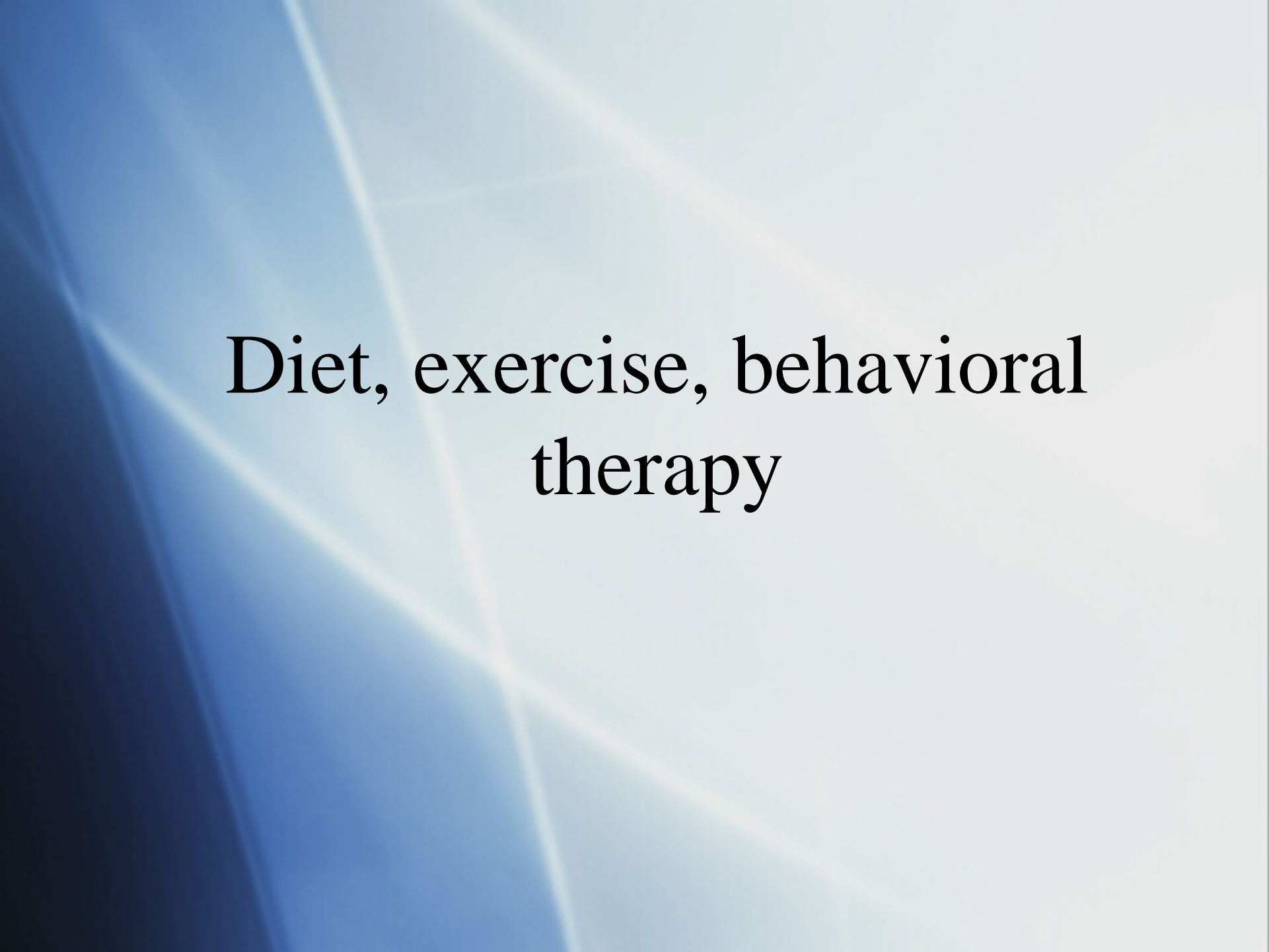
Obesity is the 2nd leading cause of preventable death in the United States

Complications of morbid obesity are **LETHAL**



Morbid obesity is a disease

- It is **NOT** laziness
- It is **NOT** gluttony
- It is **NOT** a lack of self control
- It is **NOT** a lack of character
 - This is **NOT** cosmetic surgery...

The background features a dynamic, abstract design with sweeping, curved bands of light blue and white, creating a sense of movement and depth. The colors transition from a darker blue on the left to a lighter, almost white on the right.

Diet, exercise, behavioral therapy

Lifestyle Changes

- Lifestyle changes
 - Diet
 - Exercise
 - Behavior modification

Diets

- **Diet**
 - **Very Low Calorie Diets** (<800 cal/ day)
 - Risk of nutritional deficiencies
 - **Low Calorie Diets** (800 to 1500 cal/ day)
 - Reduce wt. 8% over 6 months
 - 300# overweight by 150#...would weigh 276#
- **Starvation response to metabolic rate**

Starvation Response

- Human metabolism created in a time of scarce food resources
- All mechanisms aimed at what to do without food
- Drop metabolic needs by 30%
- Leads to weight loss plateau when dieting
- YoYo weight gain

Exercise

- Exercise
 - 3 to 7 sessions / week 30 to 60 minutes a week
 - Wt loss 2% to 3% independent of dietary therapy
 - Problem with staying with the program

Behavior Therapy

- Behavior therapy
 - Reinforces diet and exercise
 - Various methods (none superior) shown to benefit
 - Intervention must be sustained

Diet, exercise and behavioral therapy

- Combination therapy
 - Diet, exercise and behavioral therapy
 - Individual highly motivated patients may have short term success
 - Even these individuals are highly unlikely to maintain weight loss
 - Might work in those that need to loose 30#, but what about the morbidly obese????

Drug therapy

Medications

Thyroid medications

UNSAFE

Fen-Phen

Fen-Phen phenomenon

- Fenfluramine and Phentermine
- *Fen-Phen*
 - FDA approval:
 - Phentermine 1959, Fenfluramine 1973.
 - Together, the two medications produced a powerful diet drug.
 - 1992 Dr. Michael Weintraub University of Rochester study
 - *Fen-Phen* is far more effective than dieting or exercise in reducing the weight of the chronically obese

Fen-Phen

- *Fen-Phen*
 - national sensation
 - 18 million prescriptions in 1996.
- Initially, *Fen-Phen* seemed to be without immediate side effects.
- Later found to cause significant valvular heart damage, pulmonary hypertension and psychological problems
- \$4.75 Billion awarded in damages
- Voluntarily withdrawn in 1997

Medications

2 drugs PRESENTLY meet FDA criteria:

- Must lose >5% more weight than placebo
- Greater % of pts lose >5% than placebo

- Sibutramine (*Meridia*)
 - appetite suppressant
 - Contraindicated if patient has hypertension
- Orlistat (*Xenical*)
 - Fat blocker--decreases fat absorption by 30%
 - Unpleasant side-effects

Results

<u>Therapy</u>	<u>Ave wt loss @6mo</u>	<u>% wt loss @5yrs</u>
placebo	4-6%	0%
Diet/Behavior	8-12%	0%
Drug Therapy	≤ 10%	10%
Bariatric Surgery	25-50%	up to 100%

NIH Consensus

NO published studies
demonstrating significant
SUSTAINED

wt. loss

In the **MORBIDLY OBESE**

NIH Consensus

Severe obesity is a

Chronic, intractable, and progressive disorder; thus
any therapeutic program must, therefore, be

lifelong.

NIH Consensus

- Surgery is the **ONLY** way to obtain consistent, permanent weight loss for morbidly obese patients

Surgical therapy

BMI classifications and indications for surgery

	20 to 25	normal
	25-30	overweight
	> 30	obese
Comorbidities	> 35	Severe obesity
	> 40	Morbidly obese
	> 50	Super obese

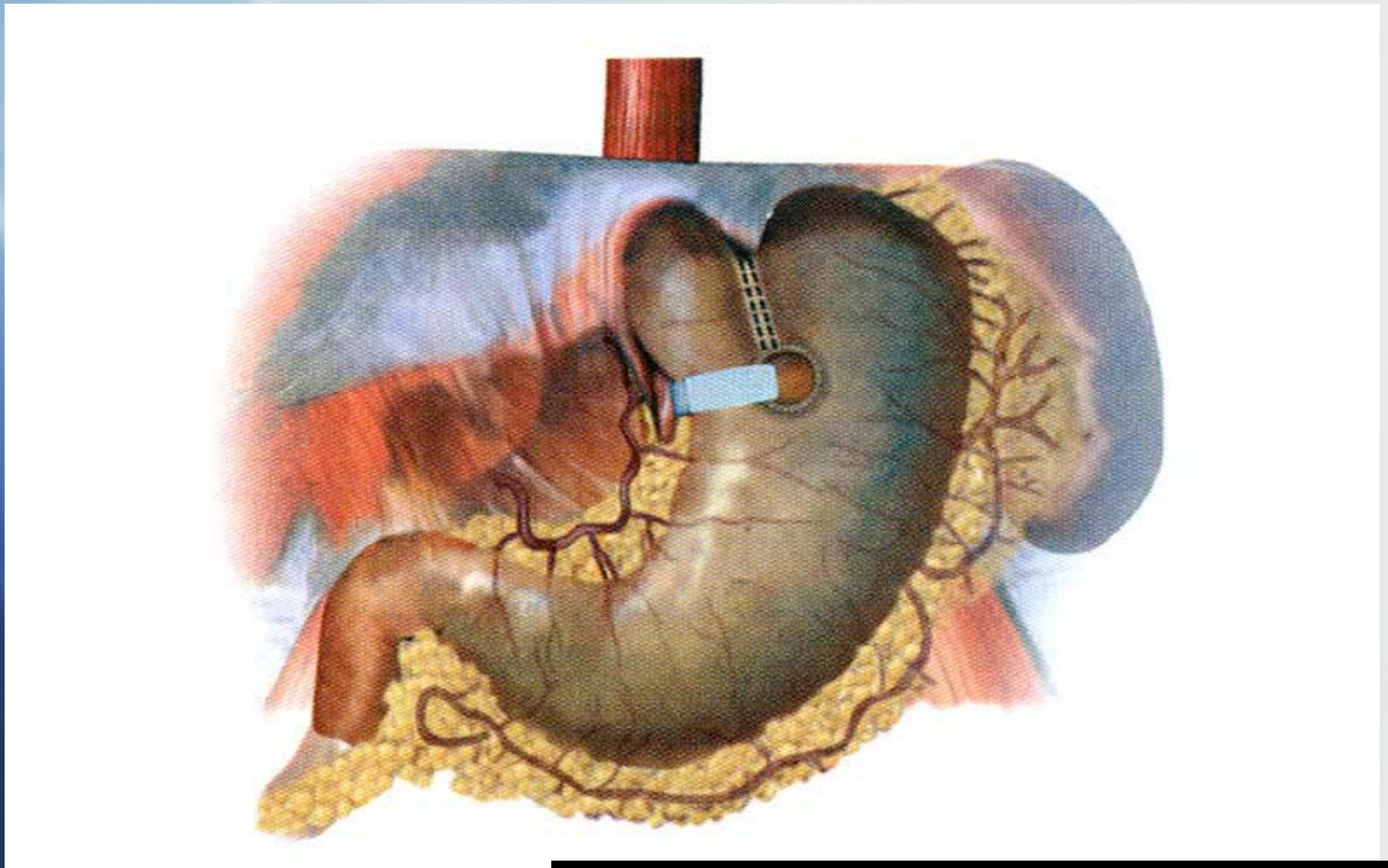
Malabsorptive procedures

- Promote wt. Loss by **limiting absorption**
 - Bypass limits absorptive surface
 - Bypass limits contact with hormones and enzymes necessary for digestion
- **Aversion mechanisms:**
 - Dumping syndrome
 - Diarrhea

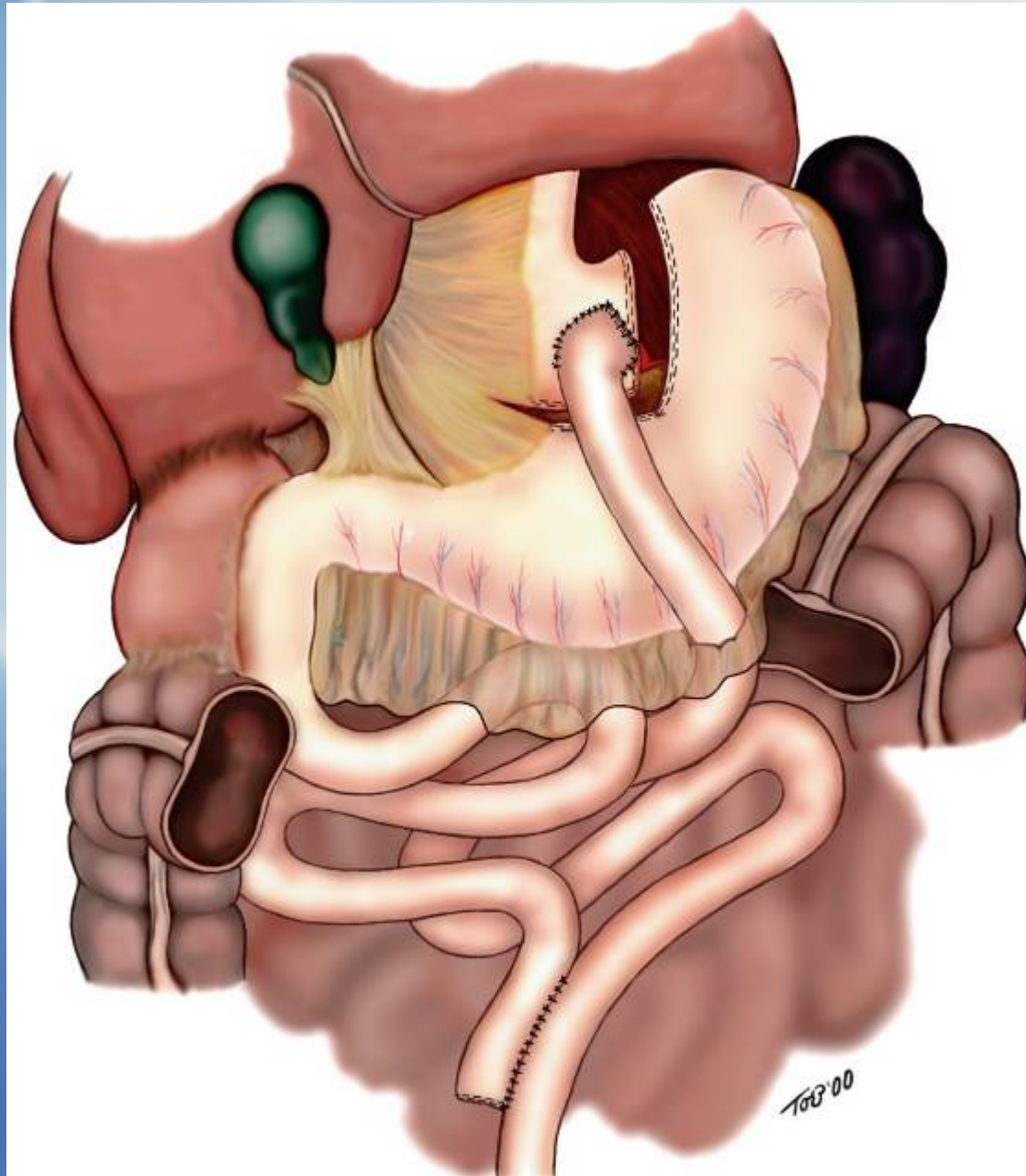
Restrictive procedures

- Decrease stomach size:
 - promote wt. loss by limiting oral intake
 - Satiety occurs with small quantity of food
- Aversion mechanism:
 - If too much food, or food taken in too quickly there is nausea, pain, and possibly vomiting.

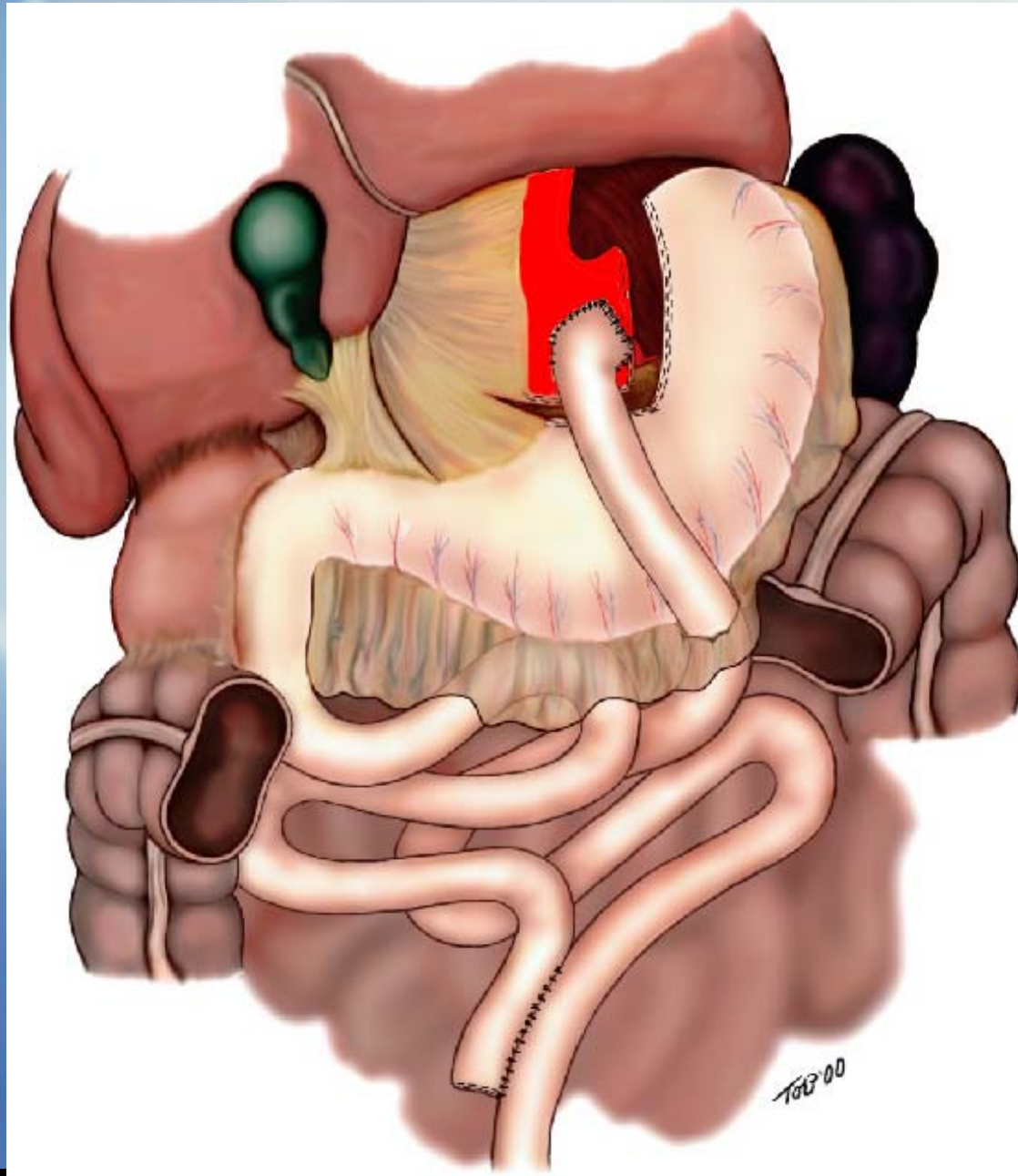
“Stomach Stapling”



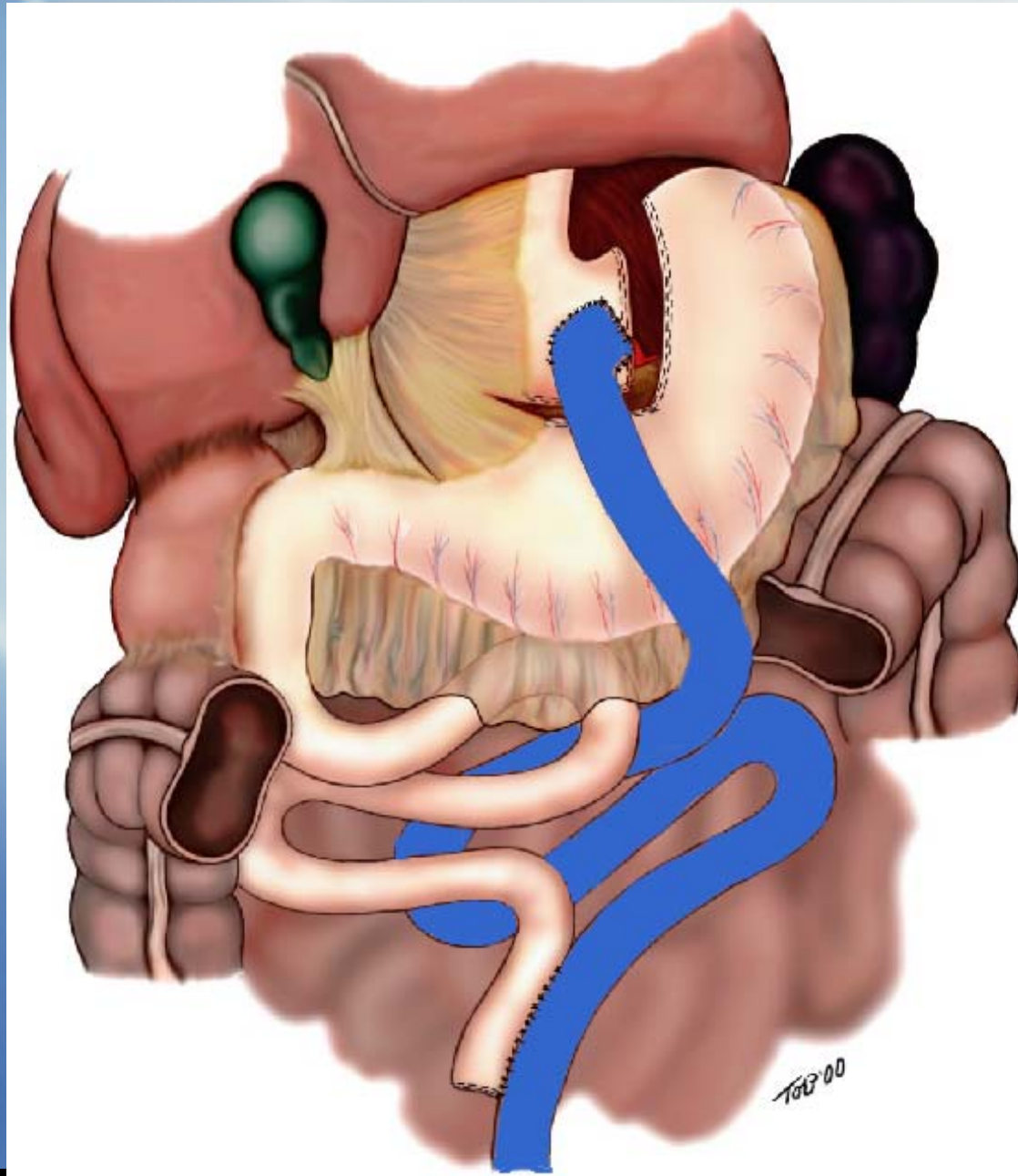
Vertical Banded Gastroplasty



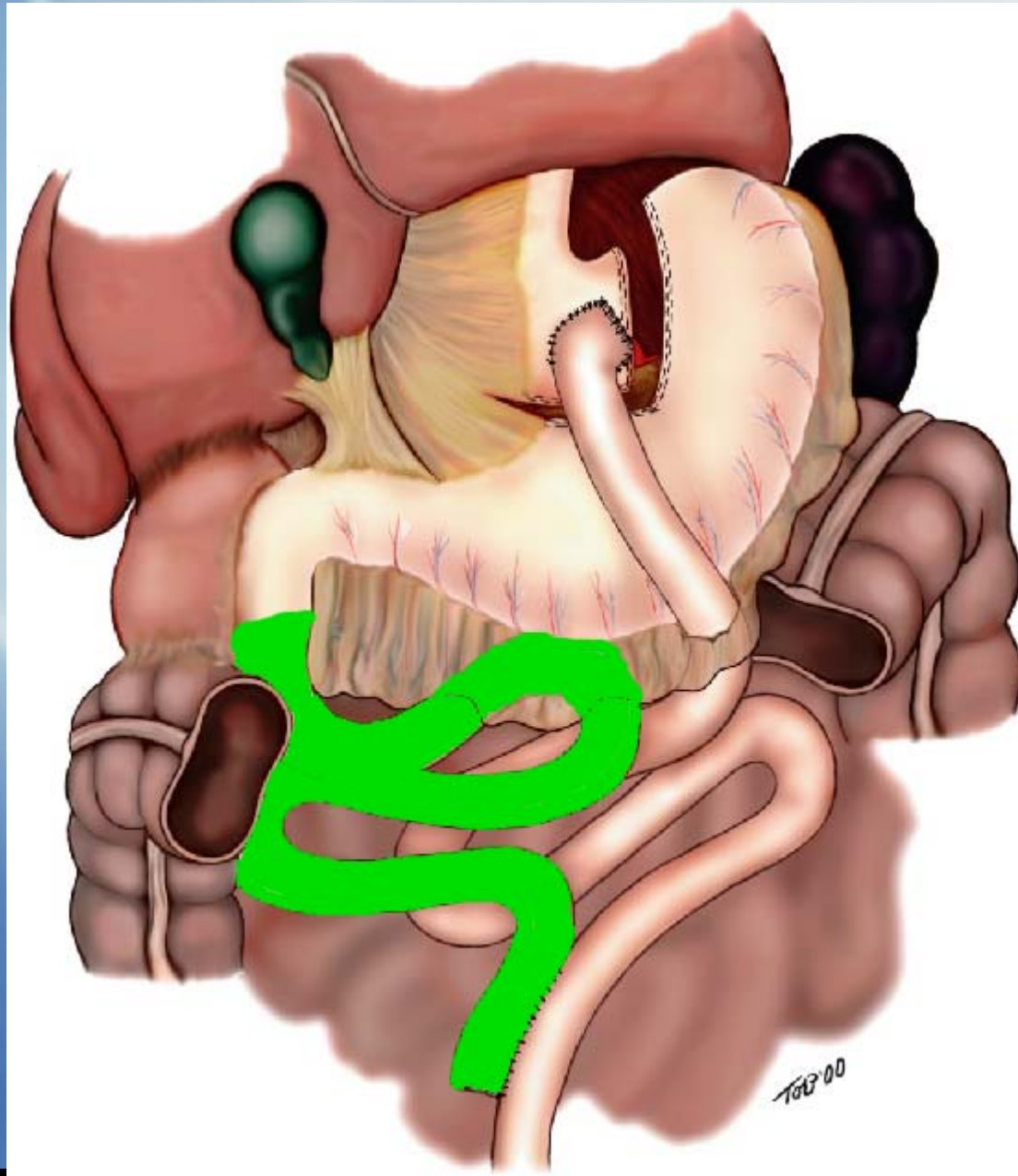
Laparoscopic Roux-en-Y Gastric Bypass



Laparoscopic Roux-en-Y Gastric Bypass



Laparoscopic Roux-en-Y Gastric Bypass



Laparoscopic Roux-en-Y Gastric Bypass

Gastric Bypass

- Minimally invasive...laparoscopic
- Quickest weight is lost in the first 6 months--50% of EBW
- Tapers over 1 ½ to 2 years
- Max EBW lost averages 70-85%
- weight is “healthy” i.e. co-morbidities are resolved
- Quickest resolution of diabetes

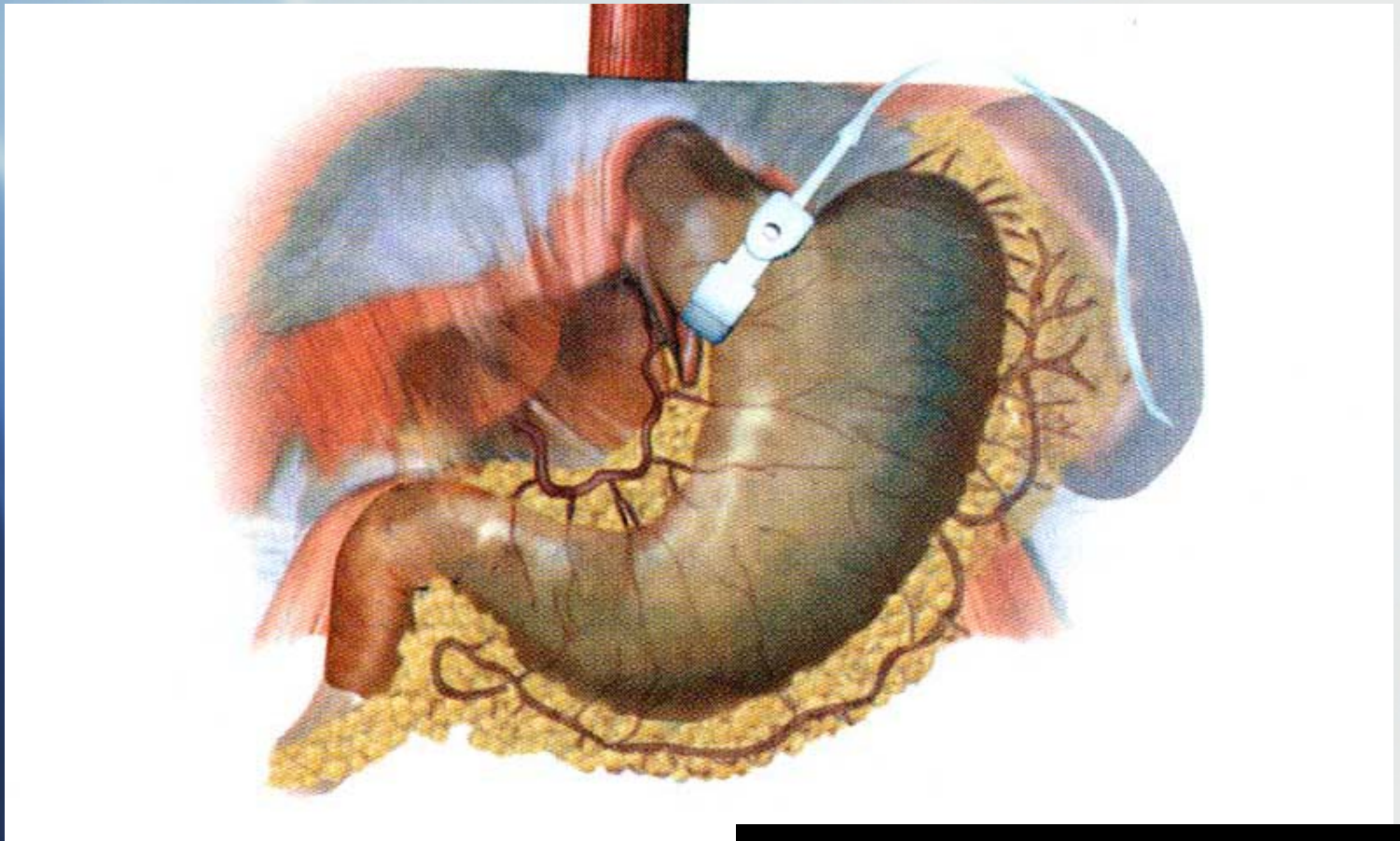
Gastric Bypass

- Hospital stay 3-4 days
- Supplemental vitamins key
 - B₁₂
 - Calcium
 - Iron
- Diet eventually is relatively normal, just smaller portions
- Some version of this surgery done for over 30 years

Paradoxical response of gastric bypass

- Starvation metabolic syndrome does not occur
- Basal metabolic expenditure remains normal
- Weight Loss is compounded

Laparoscopic Gastric Band



LAP-BAND

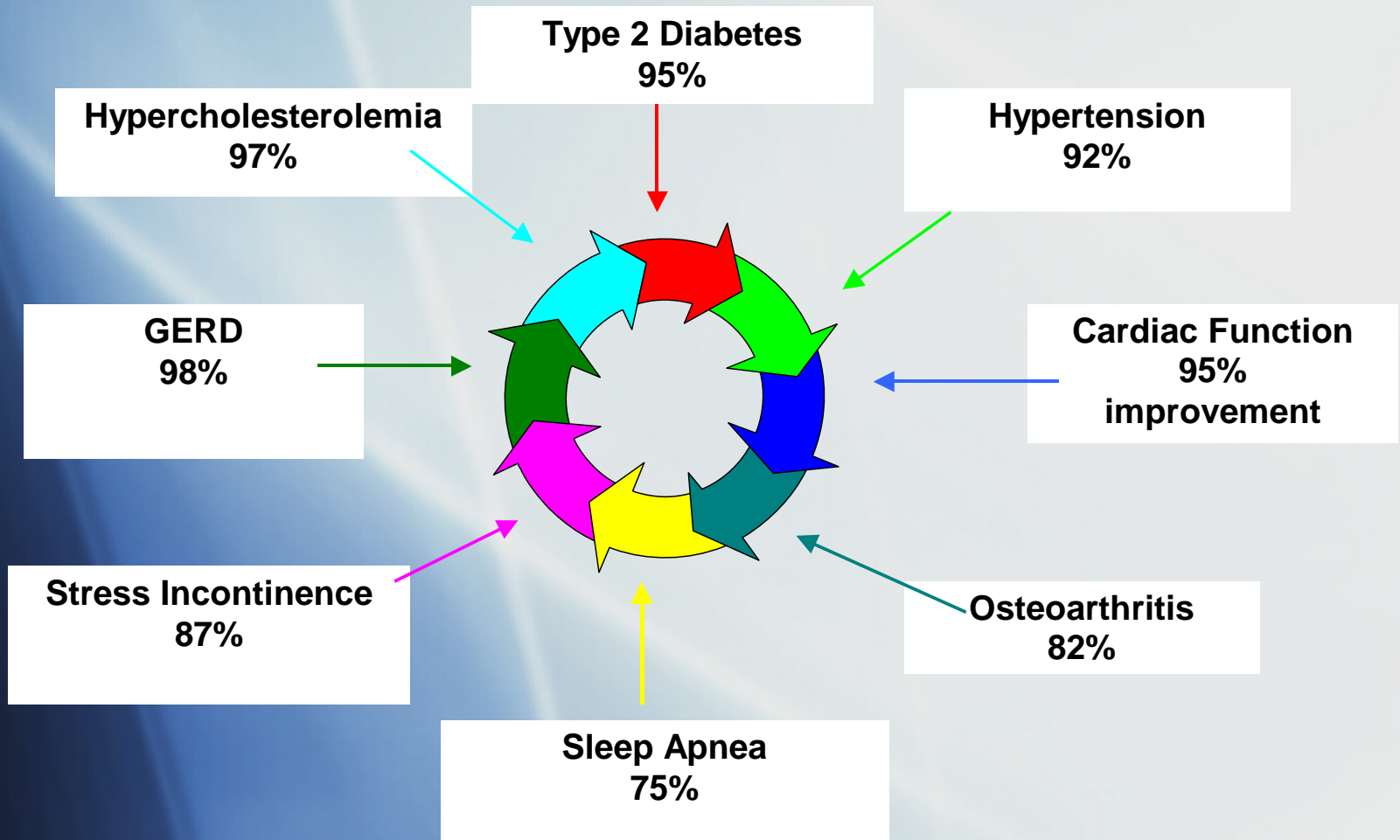
Lap Band

- Minimally invasive...laparoscopic
- Adjustable
- No staple lines
- No rearrangement of anatomy--vitamin needs unchanged
- “Reversible”
- Outpatient or Overnight stay
- Discrete

Lap Band

- Weight Loss averages 1-2#/week
- Max weight loss at 3-4 years
- Still need to “diet”
- Tool to assist with hunger
- Band does not magically burn calories
- Quickly becoming most common WLS in the US

Resolution of Co-Morbidities



Success per WL procedure

	Gastric Bypass	VBG	Gastric banding
% EBW lost	60-85	40-60	40-60
% EBW re-gained in 5yrs	10-15	25-40	?10-15



