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SUCCESSFUL AGING SECRET REVEALED

Thomas Meade, MD

JUNE 17, 2017

REALITY CHECK

- **Aging is Inevitable-** as is **death**-but the longer we put it off- as long as we are able to enjoy life- the better
- **Aging is a progressive degenerative process-** but it is tightly integrated with **inflammation**. So the more we can limit chronic inflammation- the more likely we can control the aging process



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NOW YOU KNOW SECRET!!! INFLAMMATION



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BUT WAIT??? I'M CONFUSED

- If need inflammation to fight infections and survive
- How could the same inflammation be our silent killer



SIMPLE ANSWER- 2 TYPES

ACUTE INFLAMMATION



CHRONIC INFLAMMATION



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INFLAMMATION GOOD OR BAD?

- **Acute: Awesome-Ultimate Weapon**
 - Infection
 - Trauma/injury
 - Inflammation or death!!
- **Chronic: decimates healthy tissues**
 - Destabilizes cholesterol deposits-MI/CVA
 - Attacks nerve cells in brain-Alzheimers
 - Healthy cells –Cancerous
- **AGE ACCELERATOR!!!!**



HISTORY LESSON

- 150,000 yo ----Surviving long enough to **procreate**
 - Starvation/infection –major killers
 - Genetic propensity to produce **insulin** & voracious **inflammatory** response
- Fast Fwd present-day America
 - No famines
 - Antibiotics/vaccines



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..UNTIL RECENTLY

- **‘Anti-inflammatory’ diet** to counteract pro-inflammatory genes
- 10,000 yo diet rich in fruits,veggies,lean protein, omega-3 from fish & poor in omega 6-no starches/grains
 - Enzyme systems & **insulin** promoted formation of AA to fight inflammation
 - **Silent inflammation was not an ‘evolutionary’ issue**



LAST SEVERAL GENERATIONS-OUR DIET HAS GOTTEN OUT OF HARMONY WITH OUR GENES!

20x

Omega-6 FA

Margarine, shortening, veg oils
(fish, flaxseed, eggs, grass fed
beef)



Production pro-inflammatory
compounds

1x

Omega-3 FA

Leafy veggies, flaxseed,
eggs, fish, grass fed beef



Anti-inflammatory compounds



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INFLAMMATION EXPLANATION



Obesity causes a low grade state of
chronic systemic inflammation

- Fat cells sequester arachidonic → Prostaglandins → Inflammation
- **Obesity is an age accelerator**



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CHRONIC SILENT INFLAMMATION

Common Denominator behind:

Heart Disease, Diabetes, Cancer,
Alzheimer's, Autoimmune diseases, MS,
RA & OA.



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BOTTOM LINE:

More fat—
more round the clock inflammation generated

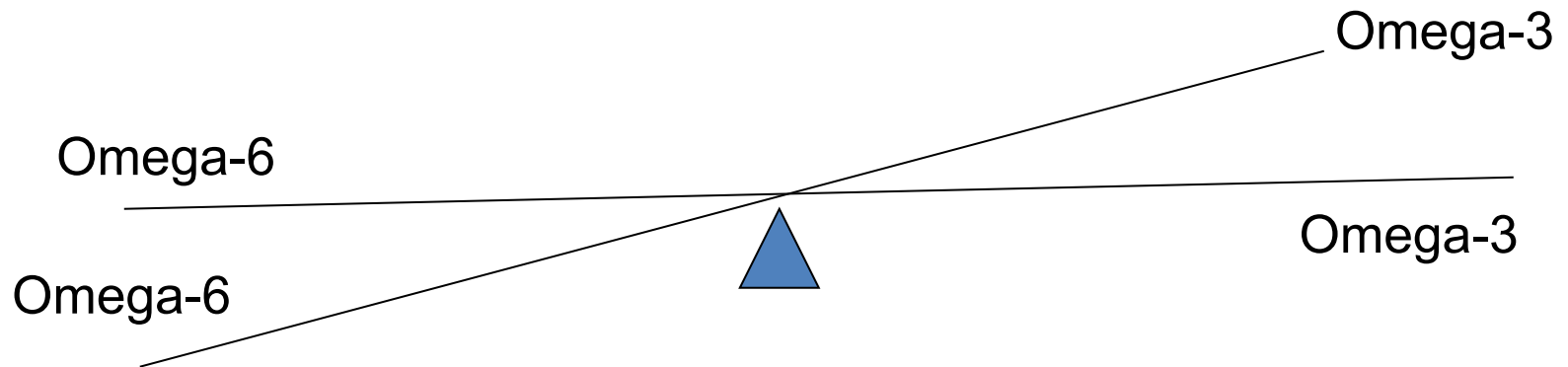


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OR

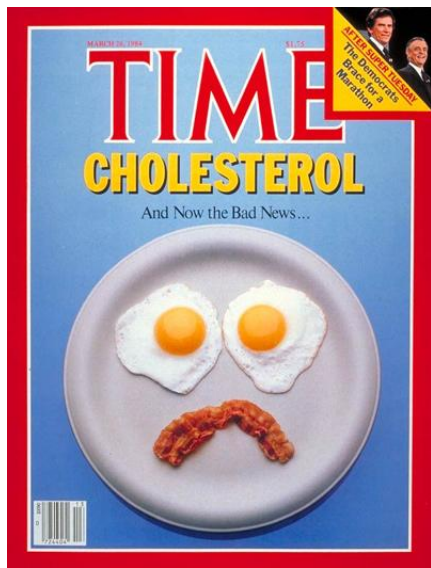
Omegaimbalance



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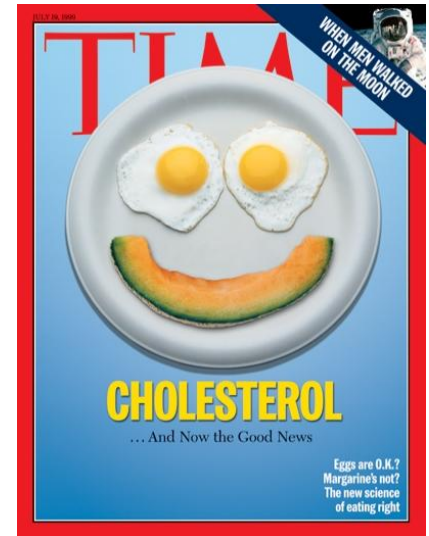
IT'S ALL NOT YOUR FAULT!



1984



50 yrs Low Fat
Recommendations



1999



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Fred A. Kummerow, an Early Opponent of Trans Fats, Dies at 102

1957 published trans fats culprit atherosclerosis
60's ,70's food industry cozy w scientists- kept trans fats in diet

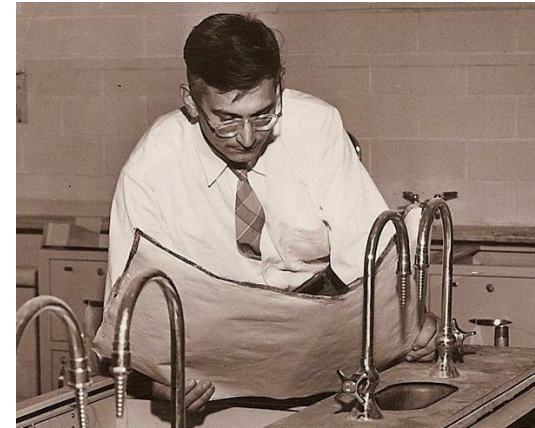
Research was heckled at conferences

1993 Harvard linked trans fats & hrt disease – turning point

2009 petitioned FDA to ban trans fats- no response

2013-sued FDA

2015 – 58 yrs later- FDA said trans fats not safe- as of June 2018

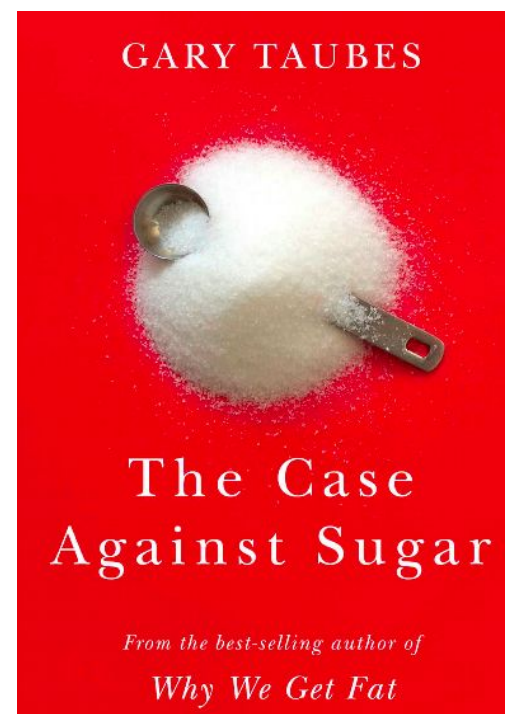


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SUGAR IS AN AGE ACCELERATOR

- Leads to high insulin levels
- Insulin is the perfect fat storage hormone
- The more fat the more 24/7 inflammation
- More sugar more 'insulin resistance'—so more insulin produced- catch 22
- More insulin- leads to metabolic syndrome (Obesity, HTN, inc sugar, TG, lo HDL)
- Major cause hrt dis, inflammation, accelerated aging all organs-alzheimers, cancer
- Blood vessel disease, cataracts, kidney failure: pick ur disease. **DM=age faster**
- ¼ adults!!



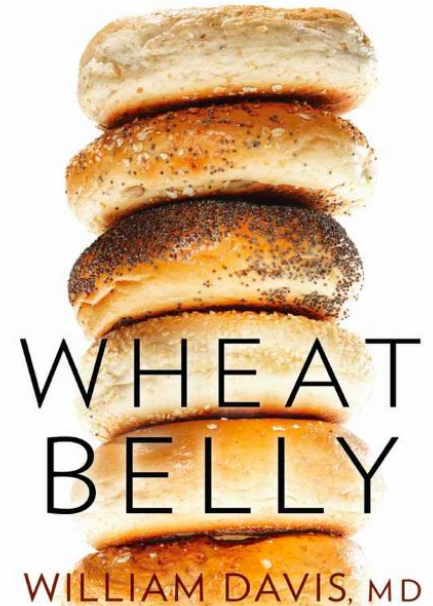
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NOW WHEAT IS WORSE THAN SUGAR

- Everything we just said about sugar is worse for wheat
- This is not your grandfathers wheat: genetically modified, stripped, enriched
- Abundance celiac disease, gluten intolerance- severe inflammation-wheat everywhere
- Eliminate wheat= eliminate weight!!
- Where did jean Cleaver go?: 115lbs, size 4, no exercise, men 150-165lbs, 32-34 waist
- Not your fault: told eliminate fat- eat whole grains
- Visceral fat, insulin resistance, more inflammation to all organs, estrogen-man boobs
- 3 egg omelet =no increase BS or body fat vs 2 slices whole wheat bread-hi bld sugar, insulin, visceral fat, inflammation..... Chronic disease aging over time

LOSE THE WHEAT, LOSE THE WEIGHT,
AND FIND YOUR PATH BACK TO HEALTH



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- **Inflammation recognized as overwhelming burden** to healthcare status of our population and underlying basis of a significant number of diseases

Hi Blood Pressure

Alzheimer's

Atherosclerosis

Insulin Resistance-Diabetes

Cardiovascular Disease

Arthritis



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HTN, Lymphedema, CHF
Venous insufficiency



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DECREASE INFLAMMATION

Chronic Disease	Goal
• Heart	↓ Inflammation
• Stroke	↓ Inflammation
• Arthritis	↓ Inflammation
• Alzheimer's	↓ Inflammation
• Multiple Sclerosis	↓ Inflammation
• Chronic Pain	↓ Inflammation



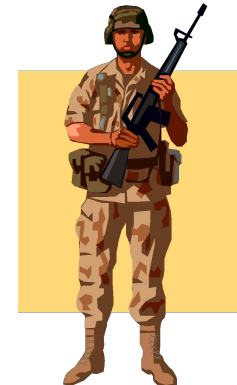
SOLUTIONS

- Exercise vs nutrition
- Both critically important- But nutrition comes first!!!
- Weight loss
- Great diet: minimize sugar, HFCS, wheat products, anything 'diet'
- Less medication
- Less hospitals
- More natural products-evidence based



EICOSANOIDS

- Foot soldiers of inflammation
 - Necessary to thwart acute injury or invasion
 - **Decommissioned** after battle ends
- If not: Become mediators of chronic silent inflammation—stimulating release of inflammatory proteins-cytokines, interleukins



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EXERCISE

Being active is good for you, but inflammation may finally explain why.

*Fat cells are factories producing inflammatory elements,...**and burning calories shrinks those factories!***

*With fewer elements around, inflammation is less likely to cause the **slow burn** that contributes to heart disease, hypertension and diabetes*



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MASTERS SWIMMERS LIVE LONGER

Swimmers have a **53% lower risk** of early death



- **Swim into your future**
The more you swim, eat right and avoid tobacco,
- The longer you'll live, according to two studies of
- More than 355,000 people. You may add as many
- **as 10 years to your life, says heart disease**
- researcher
- Jeremiah Stamler, M.D., of Northwestern University in Chicago.

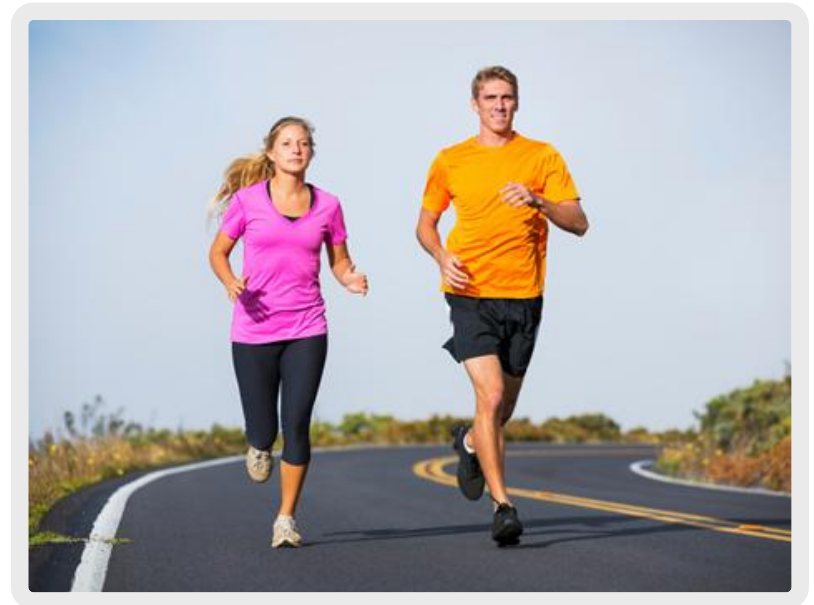


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FRIES -21 YR RUNNING STUDY

- On average, the Runners were living seven years longer, and reporting that they felt almost 14 years younger. Wow.
- Ideal COM- (compression of morbidity) live long, active , engaged life and pass away peacefully in sleep



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WHICH ONES? WHAT CONDITION?

68% of Americans take dietary supplements



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PERFECT WORLD

- Eat well balanced diet- Real food-Nature
- Lots fruits & vegetables, lean meat, fresh fish, unprocessed
- plant foods, whole grains, legumes, nuts, avoiding trans fats, sugar, HFCS



Well Hydrated

Less Blood
Viscosity
Less constipation
Less Renal Risk



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BUT- NOT A PERFECT WORLD!

- Bad farming practices
- Decreased soil quality
- Decreased nutritional value fruit/vegetables
- Nutritionally depleted livestock
- Toxic fish
- GMO wheat / food
- B-12 & Folic Acid- better not from food

More obese adults living in America today than in any other country in the world.



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NOW ENTER FISH OIL!

- Americans want wellness-minimal effort!
- Fish oil-easiest first step-15 sec/day
- Supported robust clinical studies on
 - Heart dis, cancer, immunological **and inflammatory diseases**, ADD, depression, MS, Alzheimer's-adequate doses
- Italy/Finland-EPA/DHA-every citizen-Free!



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“More Evidenced Based Science any other Supplement”

Dr Steven Lamm NYU Med School



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AMERICAN HEART ASSOCIATION

1st supplement **EVER** recommended: OMEGA-3

- ↓ CVD
- Benefit CHD pt's
- EPA/DHA 500mg-1800mg sig reduces cardiac and **ALL CAUSE MORTALITY**

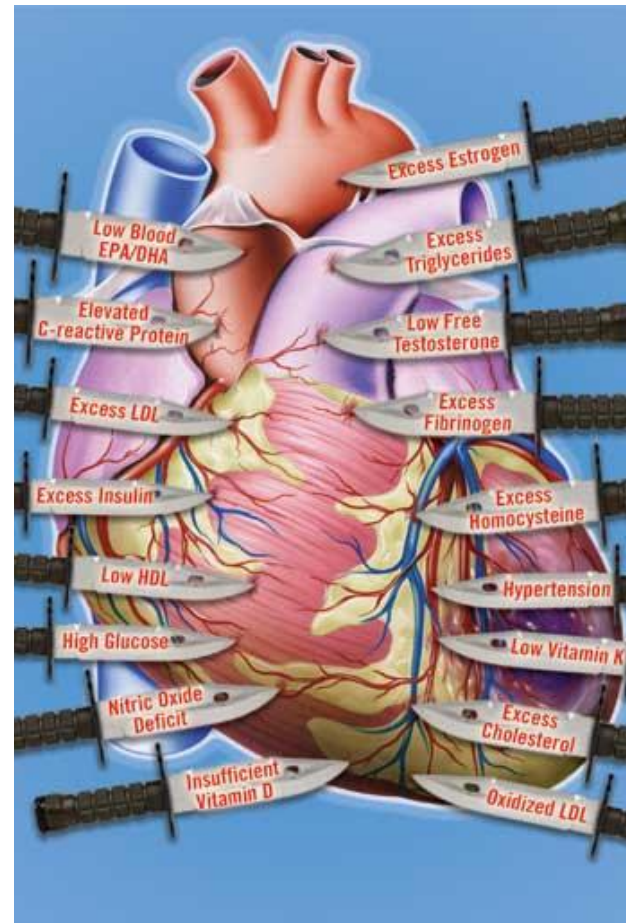


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BENEFITS HEART HEALTH EFFECTS OF OMEGA-3S

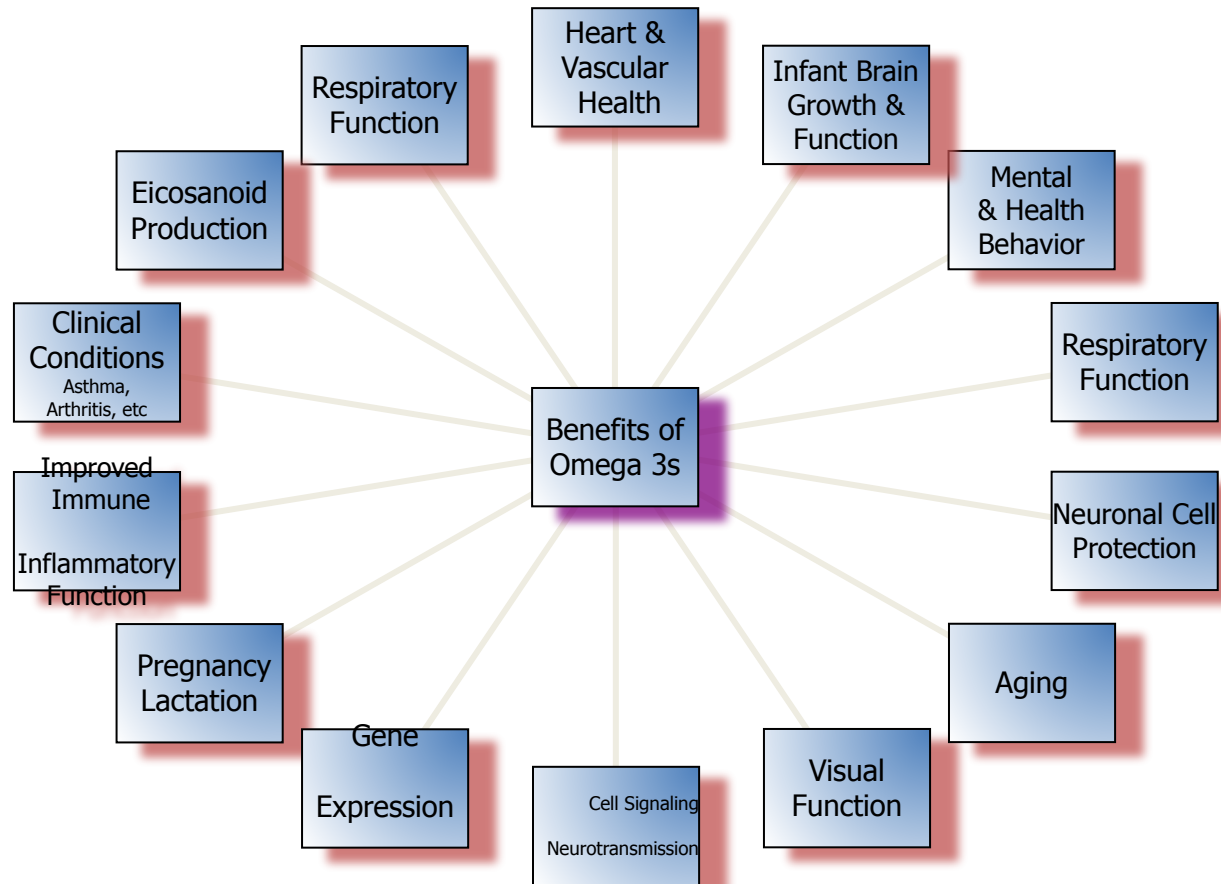
- Decrease CVD mortality and disease
- **Decrease risk of first MI, stroke**
- **Increase stability of heart rhythms**
- Improve heart rate and HR variability
- Improve blood lipid profile, decrease TG, increase HDL, decrease LDL
- Decrease plaque formation
- Decrease **inflammation**
- Decrease blood pressure
- Reduce platelet clumping (Inc PG_2 , Dec TXA_2 , PAC)



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BENEFITS



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WELLNESS

- Absence of chronic disease
- Absence of silent inflammation
- ↑↑Omega-3 → ↓↓ silent inflammation= Wellness



TURMERIC/CURCUMEN- “HOLY POWDER”-INDIA

- Traditional Chinese medicine and Ayurveda, have valued turmeric for its medicinal properties for more than **5,000 years**.
- **Curcumin: potent anti-inflammatory properties.**
 - influence more than 700 genes
 - inhibit both the activity of cyclooxygenase-2 (COX2) and 5-lipoxygenase (5-LOX)
- Modern research is now confirming many of its folklore claims of **antioxidant, anti-cancer, antibiotic, antiviral properties**
- High antioxidant capacity : 5-8X stronger than vitamins C and E,



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NATURAL ANTI-INFLAMMATORIES/ANTI-OXIDANTS

- **Omega-3 (Fish Oil)-1000-3000mg**
 - **Turmeric/Curcumin(100-500)**
 - **ASA 81mg**
 - Bromelain (100mg bid)
 - Vit D3 (5000mg)
 - Vit E (400-800mg)
 - Vit C (2000mg)
 - Mg+ (400-800mg)
 - CoQ10 (100-200mg)
 - Zn(50mg)
 - Selenium (200mcg)
 - Resveratrol (250mg)
- Green/Black Tea
Carotenoids
Black Pepper-peppercorns
Cinnamon
Clove
DHEA (25-100mg)
Tart Cherry
Avocado
Pomegranate
Ginger
Quercetin (250mg)



PTS WITH CARDIAC HISTORY

“AWESOME FOURSOME”

1. CoQ10 (100-200Mg)
2. L-Carnitine (1000-2000mg)
3. D-Ribose (5-10g)
4. Mg+ (400-800)



- Critical for ATP-energy production production in mitochondria .
 - (Krebs Cycle-Oxidative phosphorylation)
- With CAD/CHF/HTN the heart continually overworks to pump blood through
 - inflamed and congested blood vessels and ultimately expends energy
 - must faster than the mitochondria can produce it.



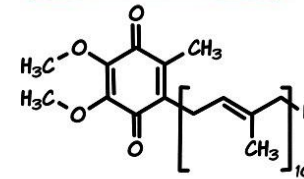
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MOST COMMON CO-ENZYME IN MITOCHONDRIA

- **Present in every cell**
- Generating **95 percent of the total energy(ATP)**
- 50% CoQ10 through dietary fat ingestion, 50%-synthesized in liver
- **Highest in Heart** but Decreased **50% by age 80**
- Powerful anti-oxidant, protects vs inflammation, free radicals
- LDL from oxidizing
- **Lower CRP**
- Help EF, HTN, Angina, Arrhythmias
- **Reduce clotting risk**

COENZYME Q₁₀



STATINS INHIBIT COQ10 PRODUCTION IN LIVER

Canada: WARNING: Statins can decrease CoQ10 and worsen CHF

USA: Statins can increase memory loss and DMII + muscle & liver damage

1990 the drug company **Merck took out patents on the use of CoQ10 in combination with statin drugs**. However, despite believing that the inclusion of CoQ10 with statins would be of “**considerable benefit**” to patients, Merck has never marketed any products containing this combination.

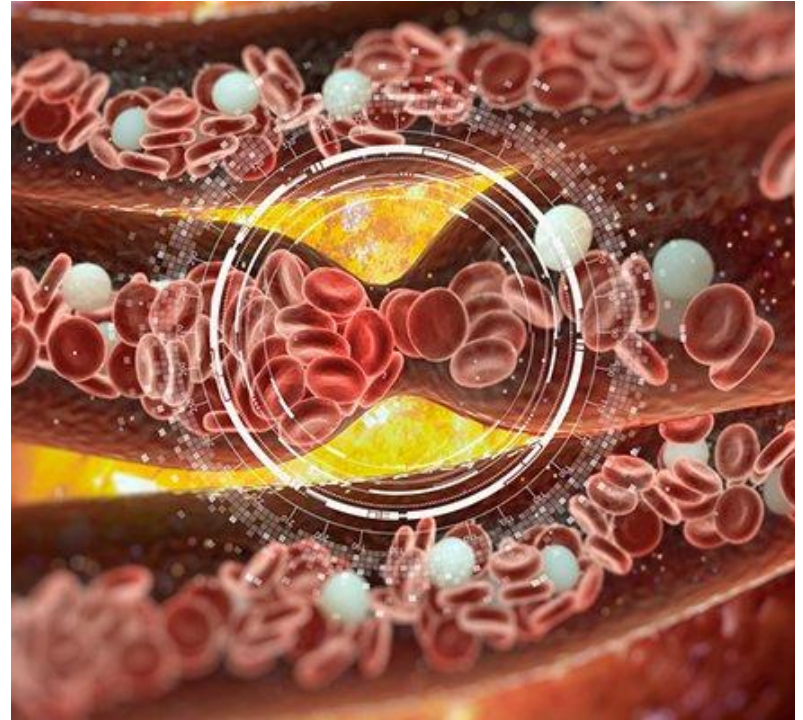


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NATURAL BLOOD THINNERS

- **OMEGA-3 2G**
- **NATTOKINASE 100MG**
- **VIT E 400-800MG**
- **MG+ 400-800MG**
- **VIT C 2000MG**
- **BROMELAIN 600MG**
- **GARLIC 600-1200MG QID**
- **TURMERIC/CURCUMIN (400MG-12 G)**
- **COQ10**

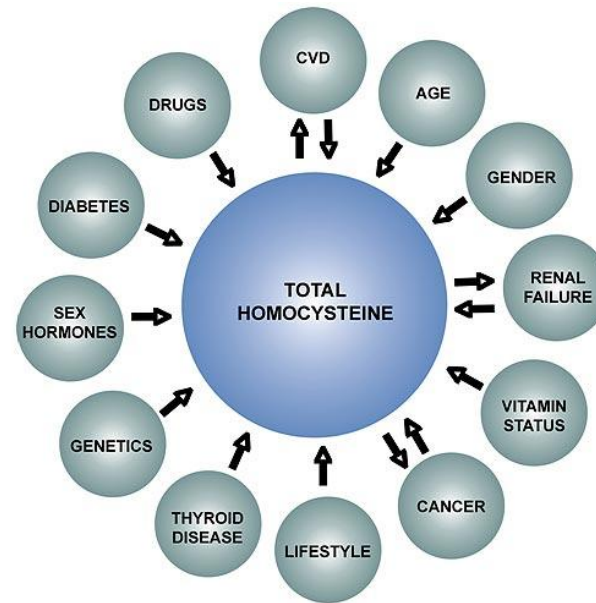


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COMPLEX VIT B (NIACIN,B2, B6, B12, FOLATE)

- Metabolized Homocysteine
- Rises w age:
 - Damages endothelium, atherosclerosis,CVA, MI,
 - Macular degeneration, migraines
- Neuropathic pain
- Increase HDL, Lower LDL, Lowers fibrinogen!



DIETARY SUPPLEMENTS-QUALITY? BUYER BEWARE!

- >50% Americans use supplements---\$30B industry
- 80-90,000 products
- **Disclaimer: Cant treat, cure, prevent disease**
- Not regulated by FDA- 'Oversee'

AG 2016: GNC, Walmart, Target, Walgreens-
only 21% store brand herbal supplements had ingredients listed on label

NSF International is an independent third-party certification body that tests and certifies products to verify they meet these public health and safety standards.

LOOK FOR "USP," "NSF," or "Consumer Lab" on the bottle (<1%)



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Modest set of nutritional supplements costs less than \$25



\$6.75/mo



\$10/mo



\$7
Q 3d

Min 2
servings/week



AVOID
Shark, Swordfish, Mackerel, Tilefish
Hi levels of Hg, PCBs, dioxins
and other environmental contaminants.



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3) Dynamic Dozen Cardiac Health, Blood flow, Anti-Inflammation

1. Omega-3 (2-6G/d)
2. CoQ10 (100-200Mg)
3. L-Carnitine (1000-2000mg)
4. D-Ribose (5-10G)
5. Mg+ (400-800mg)
6. Nattokinase (100 Mg)
7. Turmeric/curcumin (400mg-12g)
8. Vit B complex (2 capsules-Life Ext)
9. Bromelain (100mg bid)
10. Vit D3 (5000mg)
11. Resveratrol (250mg)
12. ASA 81



WHEN ALL ELSE FAILS-JOINTS CRY UNCLE!

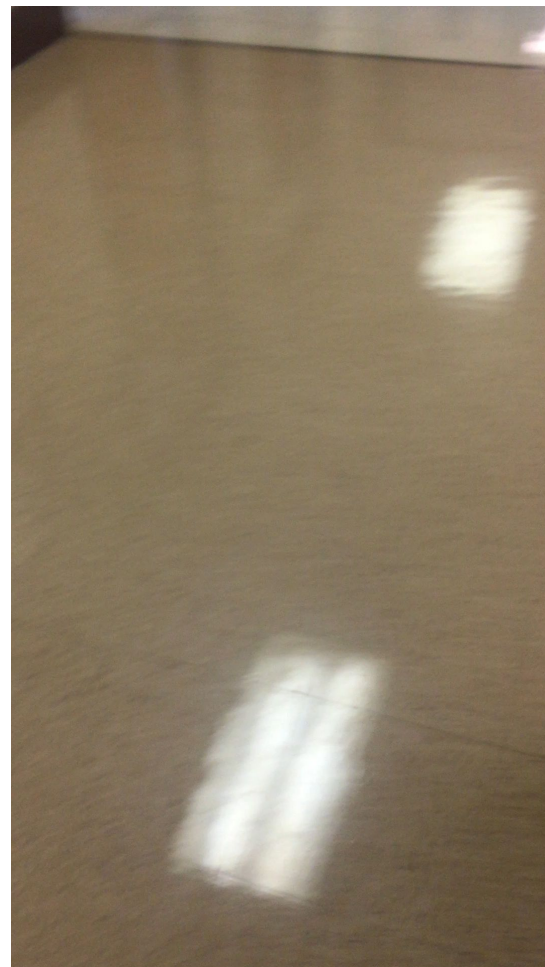
- inflammation in joints limiting QOL
 - NSAIDS
 - injections
 - Steroids, Stem Cells, PRP etc
 - Minimally invasive surgery
 - Braces, creams,
- Finally – when all else fails- modern cutting edge joint arthroplasty



HOSPITALS SAFER? THINK AGAIN!

Hospital Errors are the Third Leading Cause of Death in U.S., and New Hospital Safety Scores Show Improvements Are Too Slow

Washington, D.C., October 23, 2013 – New research estimates up to 440,000 Americans are dying annually from preventable hospital errors. This puts medical errors as the third leading cause of death in the United States, underscoring the need for patients to protect themselves and their families from harm, and for hospitals to make patient safety a priority.

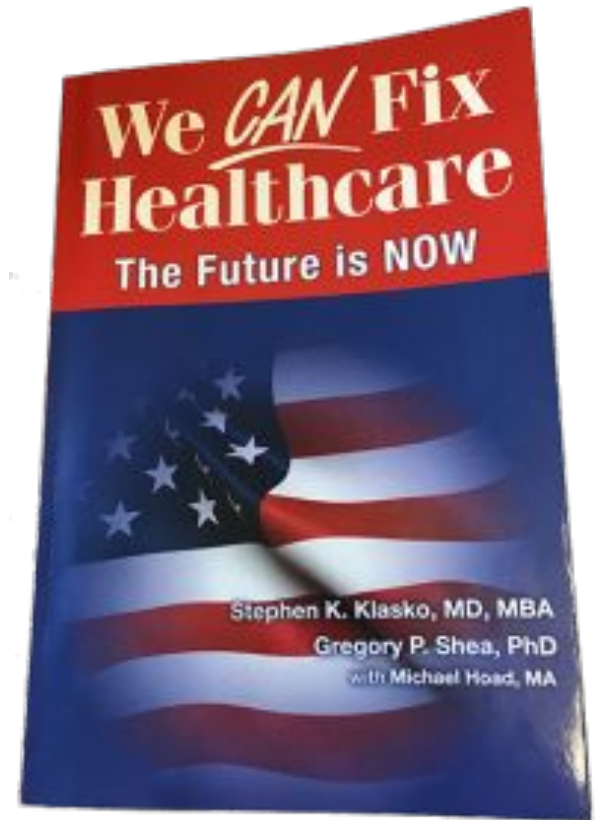


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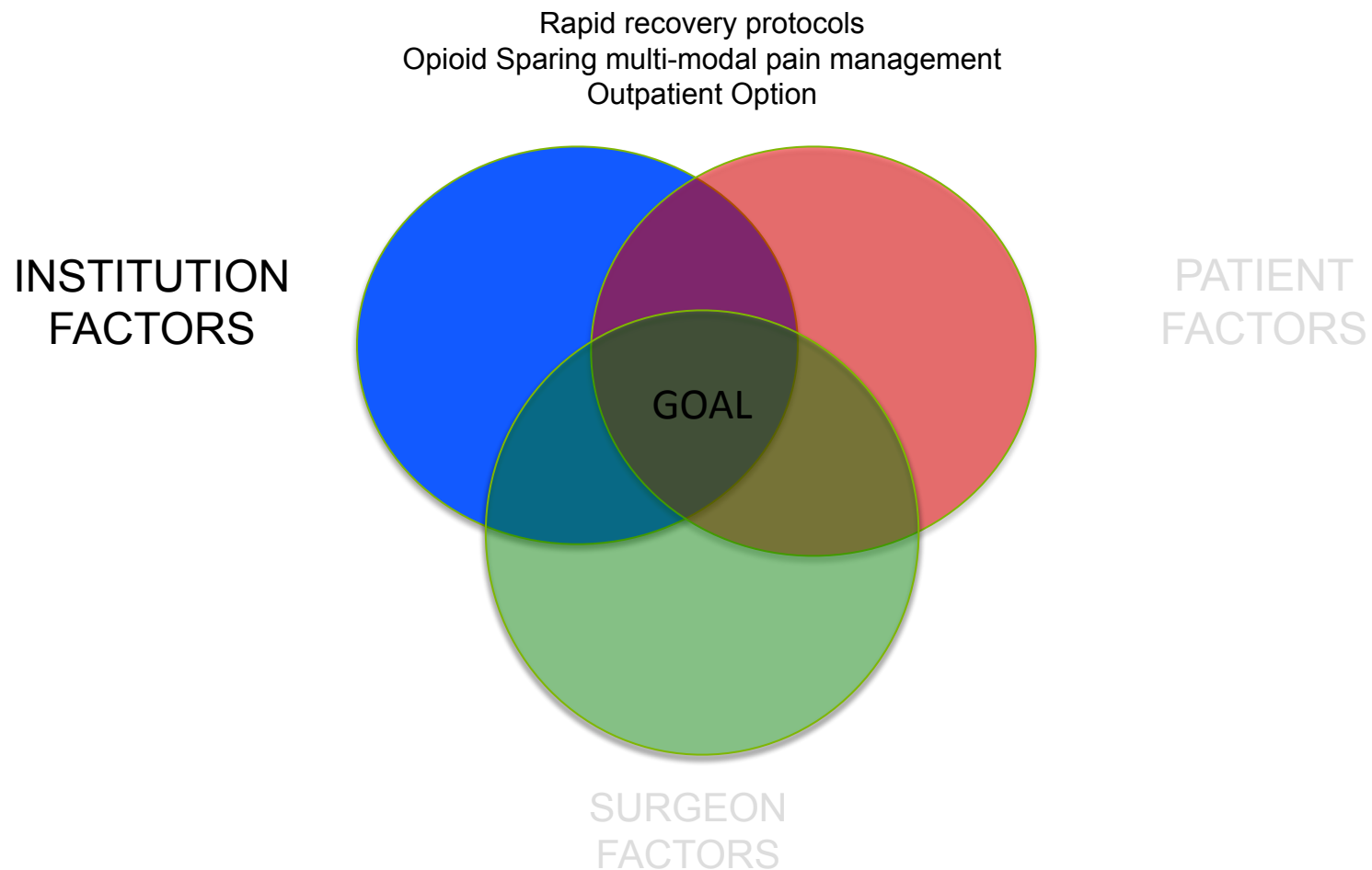
STEPHEN KLASKO MD- CEO JEFFERSON

- HC –Same problems 30 Yrs
- Inefficient, expensive, inequitable, unsafe!!
- Resistance to change-30 yrs partially to blame out control costs!!
- Meaningful unequivocal change coming-Painful!!!
- Ex: need 25% less hospitals-but more being built—despite decline overnight stays



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CH PART OF SOLUTION

- Lower Cost
- Quality Outcomes
- Hi Patient Satisfaction
- Less Errors!!
- Lowest infection rate
- Highest pt satisfaction
- Only out-pt joint replacement center NEPA
- Ready when Change Medicare Codes
- Lowest Hospital Stays
- Pre-op 'Optimization' Pt Health
- Safe Proven-Protocols/Procedures
- Track & Measure Outcomes
- Every pt treated rapid recovery



Modern Pain Management More than just Pharmaceuticals!

1. Patient Engagement
2. **Opioid Sparing** Pain Management
3. Identical for Outpatients & Inpatients
4. **Pre-OP ► Intra-OP ► Post-OP ► DC**
5. Tissue Sparing Techniques
6. Blood Loss Control
 1. Cryo-Rx etc
 2. RICE

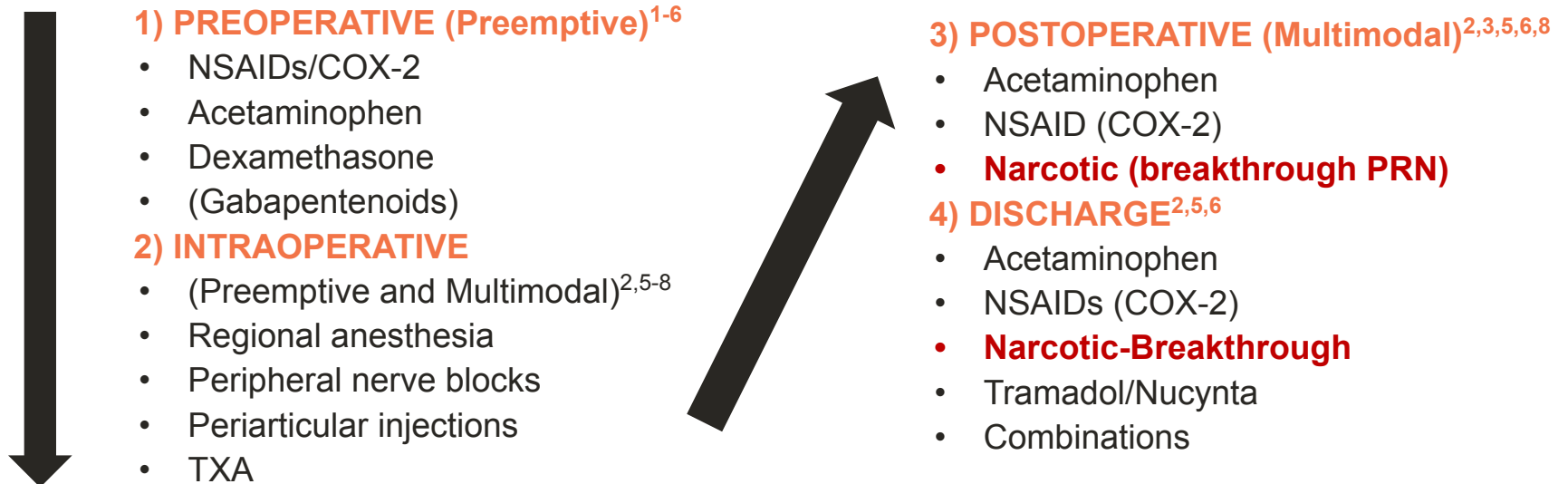


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OPIOID-SPARING SURGERY

A MULTIMODAL APPROACH IS RECOMMENDED FROM PREOPERATIVE STAGE TO DISCHARGE



Tissue Sparing Techniques Blood Loss Control

- MIS
- Limit Tourniquet Time
- Quad 'Trauma'
- Patellar Subluxing
- 'Appropriate' Retraction
- Efficient Surgical Time
- TXA
- Electrocautery/ Aquamantys/
Thrombin-fibrinogen



The Endocannabinoid System, Cannabinoids, and Pain

- **Modulate Pain and Inflammation**
- **Anti-Nausea**
- **Tissue healing**
- **No respiratory depression**
- **No fatalities** reported directly related to toxicity
- 600 million y.o. system & thousands yrs. social/medicinal use
- Pain related medical service = \$1Trillion USA
- Stay tuned- 29 states approved
 - Overdose Rx deaths decreased 25%

Future Addition: Medical Cannabis: CBD's

Dr. Sanjay Gupta: It's time for a medical marijuana revolution

By Dr. Sanjay Gupta, Chief Medical Correspondent
Updated 9:27 AM ET, Mon April 20, 2015



GOALS

50% OUTPATIENT

45% ONE NIGHT

Independent Immediately

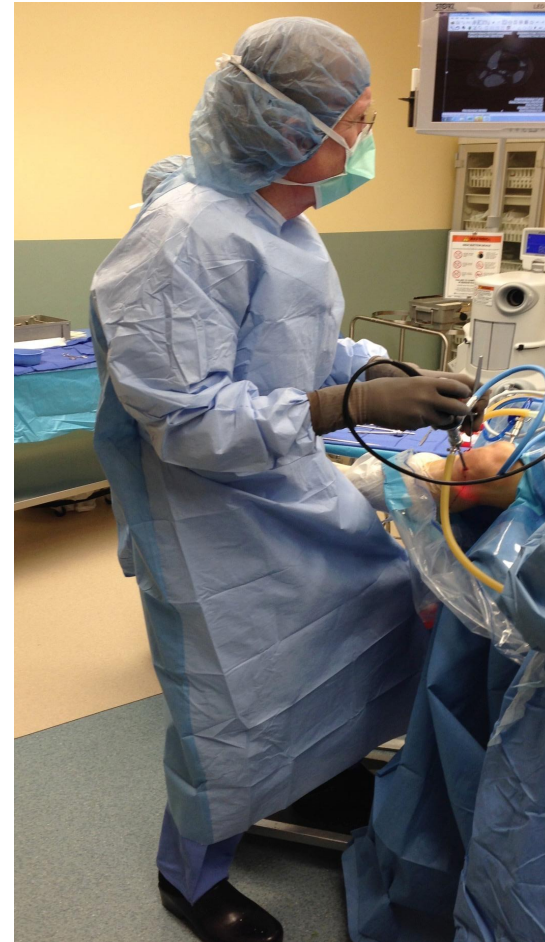
Return to work ASAP

No / Minimal Narcotics

90% healed 6-12 weeks

Full recovery 1 yr

Sore Knee 'NOT SICK' Mentality!



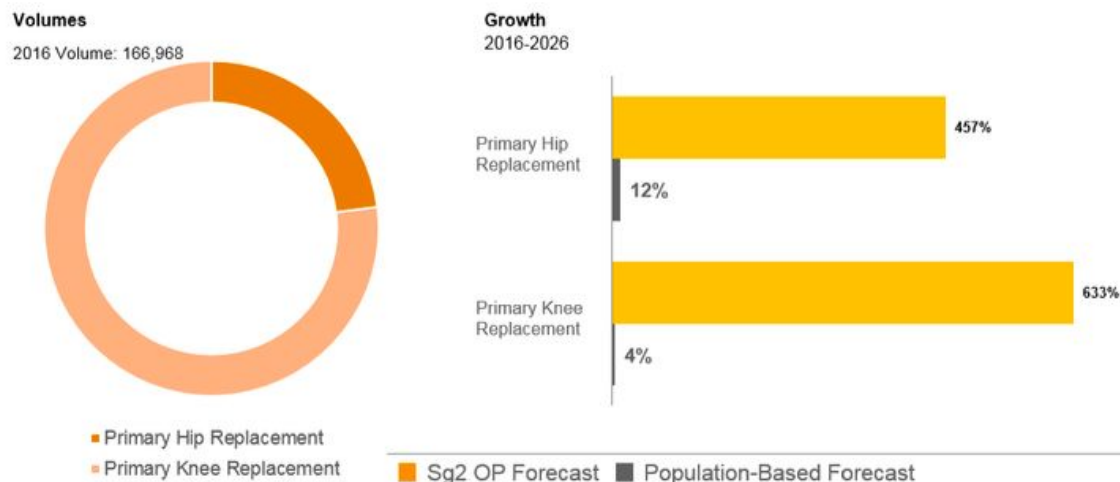
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MULTIMODAL PAIN MANAGEMENT

JOINT REPLACEMENT PRIMED FOR OUTPATIENT SHIFT

Figure 1: Outpatient Primary Joint Replacement Volumes and Growth



Note: Analysis excludes ages 0-17.
Sources: Impact of Change® v16.0; NIS; PharMetrics; CMS; Sg2 Analysis, 2016.



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OPIOID CRISIS

National Epidemic of opioid overdose deaths and addictions

JUST THE FACTS

Drug overdose is now the the **leading cause of accidental death** in the United States, surpassing auto accidents

- **Opioids** are the **most commonly prescribed class** of medications in the US
- Physician Rx: Major source of diverted opioids
- Over-prescription for **acute pain** is the main source of drug diversion
- US is **5% of the world's population**, but consumes **80%** of its opioids
- Penna Law 2017: Limits opioid Rx to 7d max-No Refills



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CONCLUSION: OUTPATIENT TJA

- Here to stay-Now only at CH
- Significant growth expected
- Cost effective
- Safe



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THANK YOU

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