

10 Ways to Reverse AF Without Drugs or Procedures: Living the Simple Life



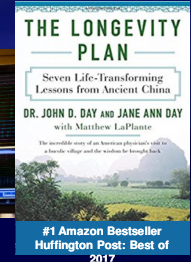
John D. Day, MD
Intermountain Medical Center Heart Institute

Disclosures

- Consultant: Boston Scientific
- Consultant: St. Jude Medical
- Consultant: Biotronik

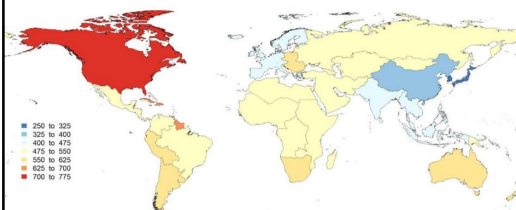
Additional Disclosure...

- 4,000+ AF ablations over 19 years
- Health & wellness author



Global AF/Flutter Burden

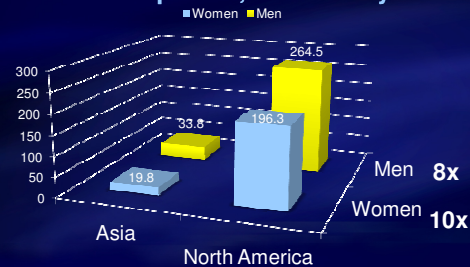
Prevalence of atrial fibrillation and flutter (per 100,000) by region, 2010



Chugh et al. *Circulation*. 2014;129:837-847

Asia vs. North America

Incidence per 100,000 Person-years

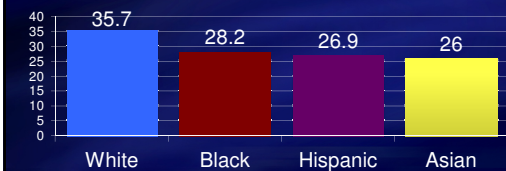


Chugh et al. *Circulation*. 2014;129:837-847

Incidence of AF in California

Medicare patients per 1,000 Person Years

- 13,967,949 patients
- 375,318 incident AF episodes over 3.2 years



Circulation. 2013 Dec 3;128(23):2470-7

How do you explain 10x???

- Reporting bias?
- Different lifestyles?



AF Prevalence in Centenarians

- U.S. Centenarians: 27%
- Danish Centenarians: 12%
- Bama, China Centenarians: 3%



Hypertension 2012; 60: A100, BMC Geriatrics 2012;12:15, Age and Ageing 2012; 0: 1–4, Chinese Journal of New Clinical Medicine 2010;3:181-183

Lifestyle?



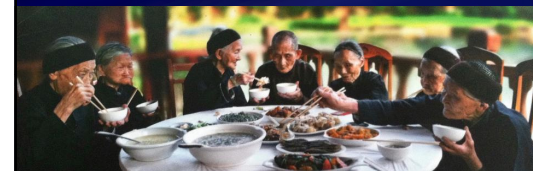
Eat Real Food



Positive Mindset



Social Connectivity



Physically Active



Natural Rhythms



Nurturing Environment



Life Purpose

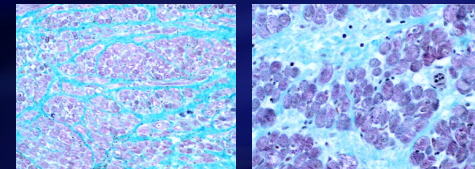


Limited Time for Lifestyle Medicine...

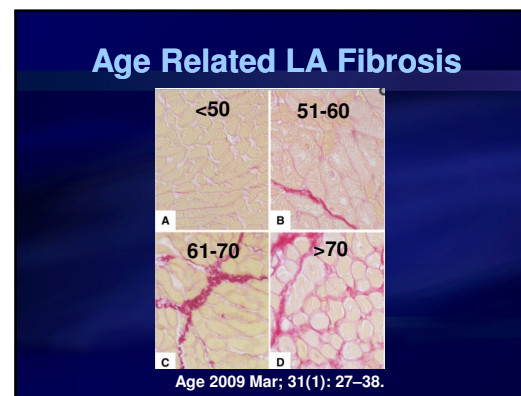
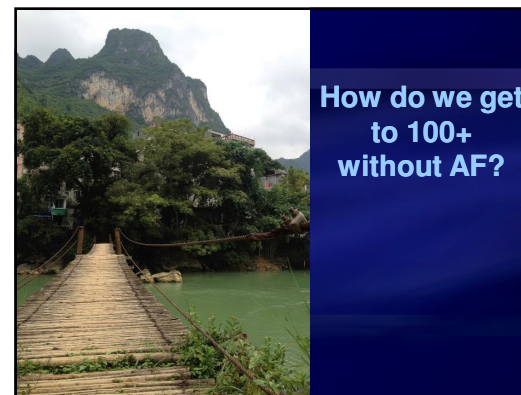
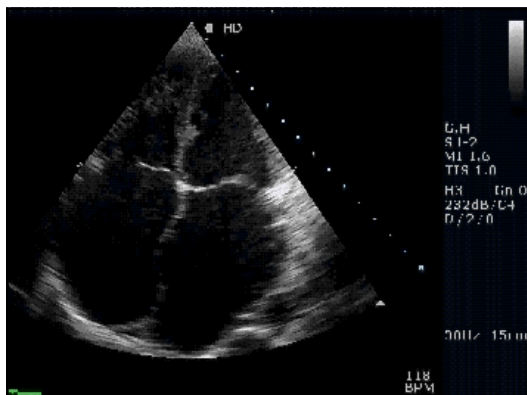


The AF Tipping Point

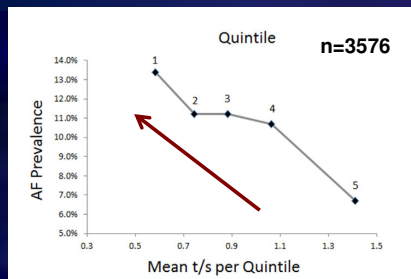
- Electrical remodeling within 30 minutes
- Fibrosis within 5 weeks



Circulation 1996;94:2968-74, Circulation 1999;100:87-95, J Cardiovasc Electrophysiol. 2015 Apr 1. doi: 10.1111/jce.12678.



Shortened Telomere AF Link

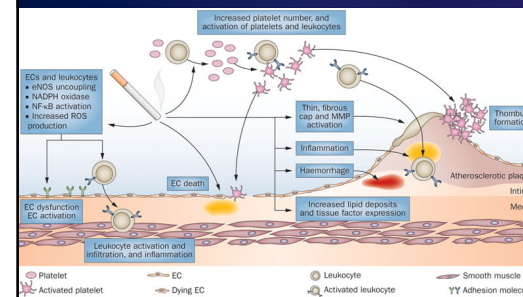


Heart Rhythm 2016;13:21-27

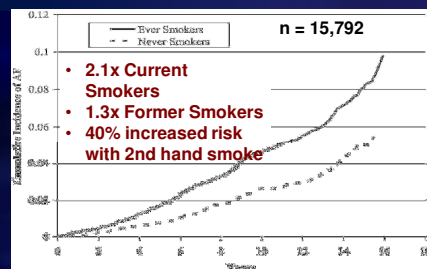
2. Stop Smoking/Air Pollution

TOXIC

Polluted Air → Inflammation

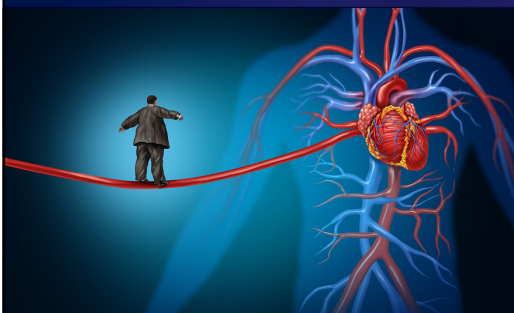


Smoking



Heart Rhythm 2011;8:1160-1166, Heart Rhythm 2016 Jan;13(1):3-9

3. Optimize Blood Pressure



Hypertrophied Myocardium



3. Optimize Blood Pressure

- 2x higher AF risk
- Treating Systolic BP from 142 → 130 decreases AF burden by 40%!

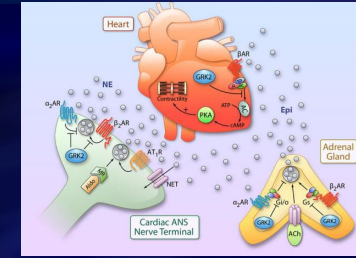


ARIC Study: American Heart Journal. 2010;159(5):850-6.
Journal of the American College of Cardiology. 2015;66(9):985-96.

4. Limit Alcohol

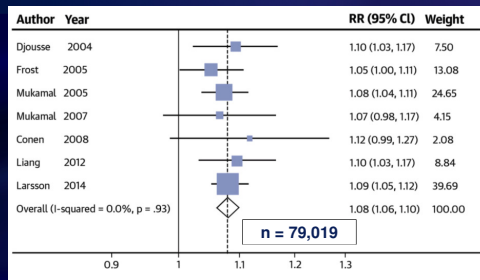


Acetaldehyde → Catecholamines



Proc (Bayl Univ Med Cent). 2009 Oct; 22(4): 335–336,
Circulation Research. 2013;113:739-753

AF Risk of 1 Daily Drink

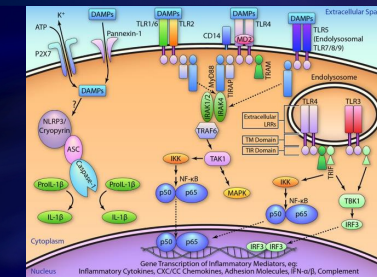


J Am Coll Cardiol. 2014;64(3):281-289

5. Follow an AF Diet



Fake Foods → Inflammation



Circ Research Image Gallery

Mediterranean Diet

- N=6,705, 5 years follow-up (PREDIMED)
- Randomized to 3 diets
- 38% less AF with Mediterranean Diet

Circulation. 2014;130:18-26

Dark Chocolate

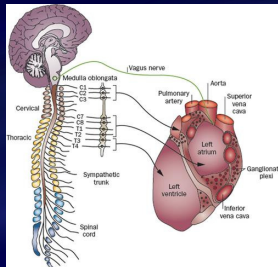
- Danish study, n = 55,502
- 16% less AF with dark chocolate daily

Heart 2017;103:1163–1167

6. Optimize Sleep



Poor Sleep → Autonomic Instability and Catecholamine Release



Pulm Med. 2013;2013:621736, Circulation Research. 2014;114:1004-1021

Sleep Apnea

- Sleep apnea: 4x AF risk
- CPAP → Reduces AF by ~40%???
- CPAP → 2x AF ablation success rate



Am J Respir Crit Care Med 2006;173:910–916, JACC 2014;62(4):309–305, J Interv Card Electrophysiol. 2013 Apr;36(3):247–53, <http://electrophysiology.onlinejacc.org/article.aspx?articleID=2277227>

Sleep Deprivation

- We sleep on average 2 hours less than 1960s
- Acute sleep deprivation increases AF 3.36x



Pacing Clin Electrophysiol. 2013 Jul;36(7):823-9

7. Reverse/Treat Diabetes



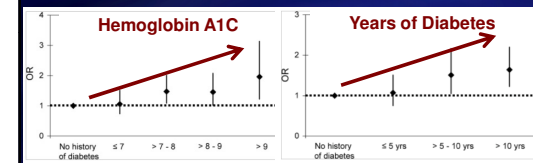
Diabetes/AF Mechanisms

1. Inflammation
2. Autonomic instability/catecholamine release
3. Hypertrophied myocyte

J Cardiovasc Dis Res. 2010 Jan-Mar; 1(1): 10–11.

Hyperglycemia and Diabetes

- 75% increase in prevalence last 20 years in US
- 40-60% increased risk of AF with diabetes

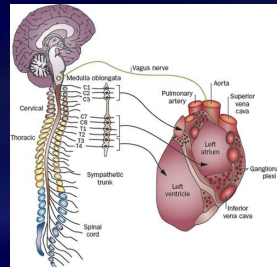


<http://care.diabetesjournals.org/content/early/2013/04/30/dc12-2074.abstract>, J Gen Intern Med. 2010 Aug;25(8):853-8. J Cardiovasc Dis Res. 2010 Jan-Mar; 1(1): 10–11.

8. Embrace Stress

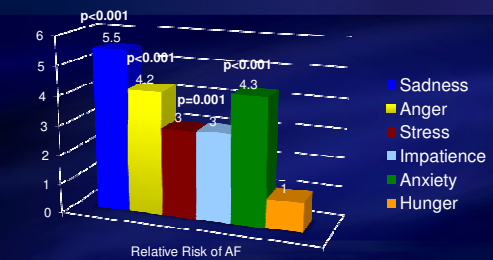


Stress → Autonomic Instability and Catecholamine Release



J Atr Fibrillation. 2013 Apr-May; 5(6): 834, Circulation Research. 2014;114:1004-1021

Daily AF Risk by Emotion



85% Less AF on "Happy Days"

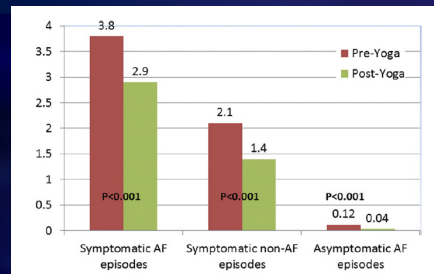
J Am Coll Cardiol. 2014;64(14):1533-1534

≥ 55 Working Hours and AF

- N=85,494 from Denmark, Finland, Sweden
- 40% increased AF risk

Eur Heart J 2017; doi: 10.1093/eurheartj/ehx324

Yoga: 24% Reduction

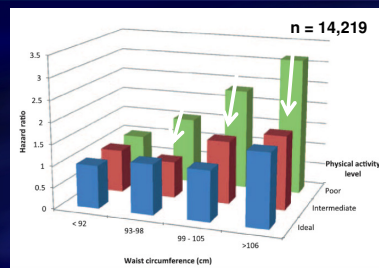


JACC Vol. 61, No. 11, 2013 March 19, 2013:1177–82

9. Physical Activity

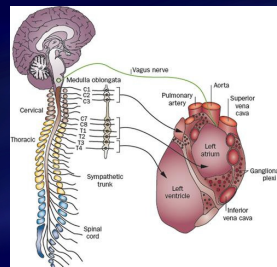


Some Physical Activity ~50% Reduction



Circ Arrhythm Electrophysiol. 2014;7:620-625

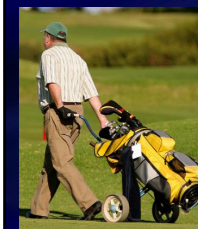
Low Activity → Autonomic Instability and Catecholamine Release



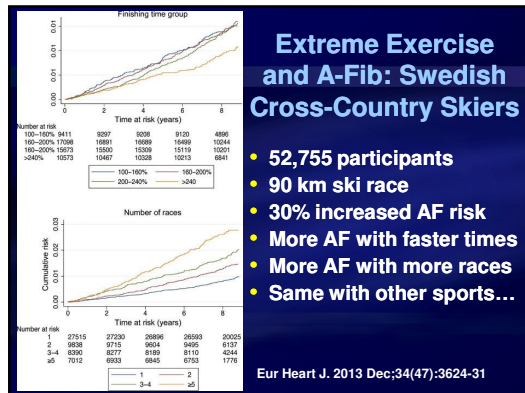
JACC. 2015;66(9):985-996, Circulation Research. 2014;114:1004-1021

CARDIO-FIT Study

- 2 MET gain decreased AF by 2x!



Journal of the American College of Cardiology. 2015;66(9):985-96



Obesity/AF Mechanisms

1. Inflammation
2. Autonomic instability/catecholamine release
3. Hypertrophied myocyte

J Cardiovasc Dis Res. 2010 Jan-Mar; 1(1): 10–11.

What does Framingham tell us?

JAMA The Journal of the American Medical Association
Original Contribution | November 24, 2004
Obesity and the Risk of New-Onset Atrial Fibrillation
FREE
Thomas J. Wang, MD; Helen Parise, ScD; Daniel Levy, MD; Ralph B. D'Agostino, PhD; Philip A. Wolf, MD; Ramachandran S. Vasan, MD; Emelia J. Benjamin, MD, ScM
[+/-] Author Affiliations
JAMA. 2004;292(20):2471-2477. doi:10.1001/jama.292.20.2471. Text Size: A A A

- Up to 52% increased risk through LA changes
- 4% increased AF risk for every 1 point in BMI
- Pericardial fat now an additional risk factor

Circ Arrhythm Electrophysiol. 2010 Aug;3(4):345-50

Bariatric Surgery: 29% Less AF

J Am Coll Cardiol. 2016 Dec 13;68(23):2497-2504

JACC JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
Home Current Issue All Issues Just Accepted Online Before Print T
Original Investigations | March 2015
Long-Term Effect of Goal Directed Weight Management in an Atrial Fibrillation Cohort: A Long-term Follow-Up Study (LEGACY Study)
Rajeev K. Pathak, MBBS¹; Melissa E. Middeldorp¹; Megan Meredith¹; Abhinav B. Mehta, M Act Sc²; Rajiv Mahajan, MD, PhD¹; Christopher X. Wong, MBBS¹; Daragh Twomey, MBBS¹; Adrian D. Elliott, PhD¹; Jonathan M. Kalman, MBBS, PhD²; Walter P. Abhayaratna, MBBS, PhD²; Dennis H. Lau, MBBS, PhD¹; Prashanthan Sanders, MBBS, PhD¹

How Important is Losing 35 Pounds?

1. 46% of A-Fib patients went into remission
2. Systolic blood pressure down 18 mmHg
3. Inflammation decreased 76% (CRP)
4. 88% of diabetes went into remission
5. LDL down 16%, triglycerides 31%
6. 18% less dilation/hypertrophy by echo
7. Sense of well-being increased 200%



Just a 10% Body Weight Loss

- 6x less AF burden!



Journal of the American College of Cardiology 2015;65(20):2159-69.

Will lowering BMI improve long-term ablation success?

J Interv Card Electrophysiol
DOI 10.1007/s10840-016-0142-5

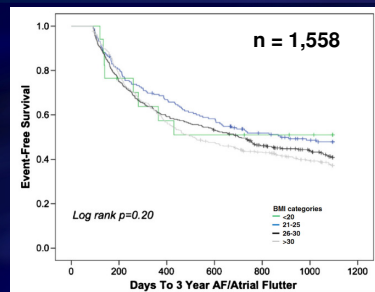


Long-term influence of body mass index on cardiovascular events after atrial fibrillation ablation

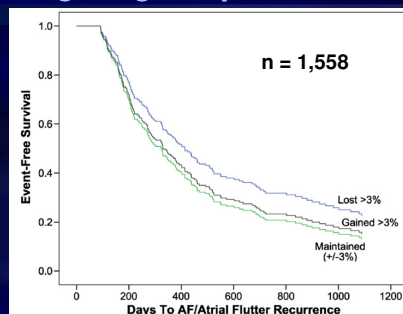
T. Jared Bunch^{1,2,3} · Heidi T. May¹ · Tami L. Bair¹ · Brian G. Crandall¹ ·
Michael J. Cutler¹ · Victoria Jacobs¹ · Charles Mallender² · Joseph B. Muhlestein¹ ·
Jeffrey S. Osborn¹ · J. Peter Weiss¹ · John D. Day¹

J Interv Card Electrophysiol. 2016 Sep;46(3):259-65

A Lower BMI Improves Success

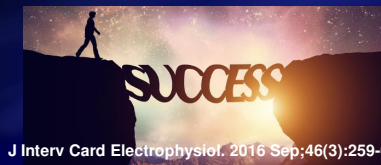


Losing Weight Improves Success



BMI and Long-term Success

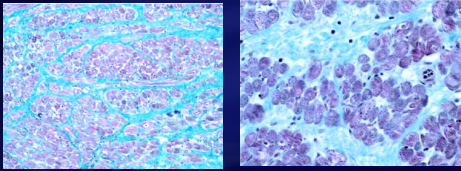
1. Optimal BMI was 21-25
2. Any weight loss improves success
3. Most high BMIs recur long-term
4. BMI ≤ 20 have a high risk of CV death



J Interv Card Electrophysiol. 2016 Sep;46(3):259-65

3 Mechanisms to Prevent LA Fibrosis

1. Keep systemic/local inflammation low
2. Autonomic stability/reduce catecholamines*
3. Prevent/reverse the hypertrophied myocyte



*Except in ultra endurance athletes
Circulation 1996;94:2968-74, Circulation 1999;100:87-95,
J Cardiovasc Electrophysiol. 2015 Apr 1. doi: 10.1111/jce.12678.

Questions?

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