

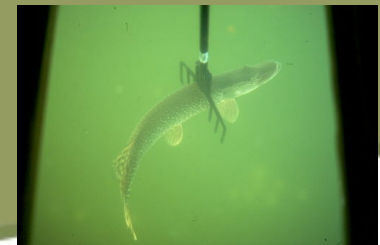
# The Heat Prescription: Sauna as a Treatment Modality

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# My Favorite Sauna

- Grandfather's Ice Fishing House in Northern Minnesota





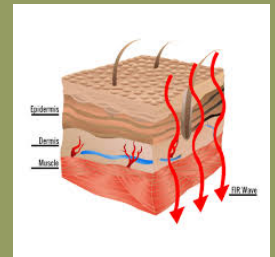
# My Favorite Sauna

- Grandfather's Ice Fishing House in Northern Minnesota



# The Heat Prescription: Sauna as a Treatment Modality

- Prescribing lifestyle interventions
  - Diet
  - Exercise
  - Sauna?
- Exercise is Medicine
- Sauna is Medicine?
  - Sauna research needed
    - Population studies helpful
    - Clinic trials important
    - Compare sauna to exercise, other interventions
    - Compare traditional to infrared sauna



# Exercise is Medicine

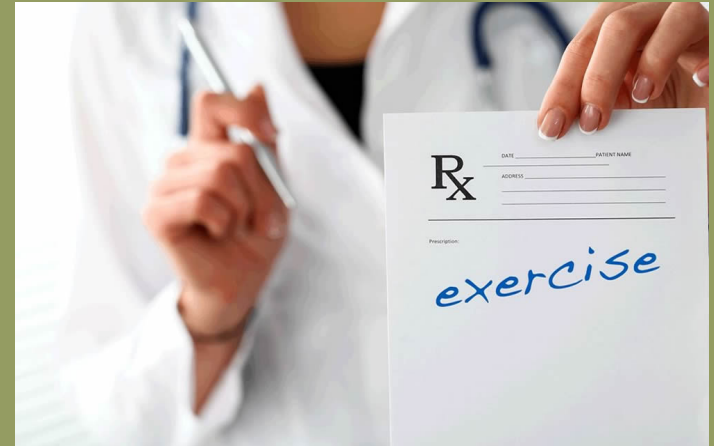
- Global health initiative by ACSM
- Founded in 2007 make physical activity a standard in health care
- Connects health care providers with evidence based research on health benefits of exercise
- *“If we had a pill that contained all the benefits of exercise, it would be the most widely prescribed drug in the world”*
  - Ron Davis, M.D., President of the American Medical Association





# The Exercise Prescription

- Diagnosis: Hypertension
- Prescription:
  - Losartan: 50 mg daily
  - Exercise: light jog 20 minutes 3x/week
  - Either or both - options and motivation for patients



# Sauna is Medicine

- Hard science needed
- Alternative medicine claims
- Funding concern (no drug companies)
- Need large scale population studies and clinical trials
- Sauna Prescription: Traditional Sauna 190 deg F for 20 min 3x/week



# International Journal of Sauna Studies

- Founded 2017 by Dr. Jack Tsonis and Dr. Jari Laukkanen
- Revitalize sauna research as an academic field
- Areas of study
  - Health science
  - History and culture
  - Technology and design





# Health Science Research

- Important diseases to study:

- Hypertension
- Type 2 diabetes
- Depression and anxiety
- Asthma and COPD
- CHF
- Insomnia
- Hyperlipidemia
- Dementia
- Arthritis



- Benefits of sauna suggested for these diseases in limited prior study

# Health Science Research

- Population Studies
  - Understanding large groups
  - Share common diseases or behaviors
- Clinical Trials
  - Assign subjects randomly
  - Different intervention arms
  - Manipulate environment to modify processes or outcome
  - Evaluate effect of intervention on physical or behavioral outcome



# Clinical Sauna Study

- Factorial Design
  - Allows for smaller sample size
  - Tests two conditions vs no treatment
  - Decide on topic
    - Depression, hypertension, blood sugar, etc
  - Four groups:
    - Sauna
    - Exercise
    - Both sauna and exercise
    - Neither sauna nor exercise





# Sauna Therapy and Diabetes

- Compare exercise to sauna for blood sugar control
  - Hbg A1C easy to measure
  - Physical training increases insulin sensitivity in muscles and increases transport of glucose due to larger capillary network and blood flow (also occurs in sauna)
- NEJM study: 3234 subjects showed more A1C benefit from lifestyle changes compared to oral medication (A)
- Compare sauna to glucophage?



# Sauna Therapy and Depression or Anxiety

- Compare sauna to exercise or medication for mental health
- Parasympathetic nervous system
- Blumenthal study: (B)
  - 155 patients with depression
  - Exercise similar to medication

**Depression Survey**  
Patient Health Questionnaire (PHQ-9) Depression Scale

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself or that you are failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

Scoring: Sum the numerical answers to questions number 1 through 9.

Score	Severity
0-4	None-Minimal
5-9	Mild
10-14	Moderate
15-19	Moderately Severe
20-27	Severe

*If you are feeling overwhelmed, depressed or unable to do the things you once enjoyed, it may be time to pause and assess your emotional health.*

Please note that suicidality is not assessed in this survey.

If you feel you may be at risk or have thoughts about harming yourself or others, please seek immediate help from a medical professional.

Call 911 or the 24/7 Crisis Hotline at 1-844-4CRISIS (1-844-427-4747).

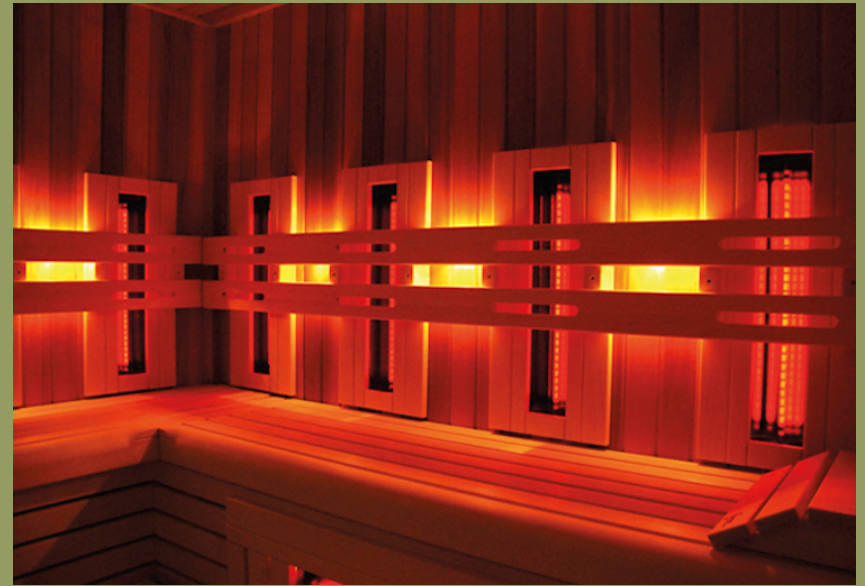
# Sauna Therapy and Hypertension

- Compare sauna to exercise or medication for blood pressure control
  - A decrease in 20 mm Hg systolic cuts cardiac risk factors in half (Lewington 2002) (C)
  - Physical training lowers blood pressure by neuro-hormonal and vascular adaptations (exercise and heat adaptations are similar)
  - Blood pressure is easy to monitor





# Traditional vs Infrared Sauna Study



# The Sauna Prescription:

- Conclusions
  - Exercise is Medicine
  - Sauna research needed to support Sauna is Medicine
  - Compare to exercise in clinical trials for diabetes, HTN, etc
  - Infrared vs Traditional Sauna
  - Help health care providers prescribe heat therapy based on evidence from solid research

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sauk prairie  
HEALTHCARE

RIVER VALLEY CLINIC  
436 Sunrise Dr, Spring Green, WI 53588  
608-588-2502

PATIENT JOE DIABETIC DOB \_\_\_\_\_  
ADDRESS \_\_\_\_\_

Rx: Sauna  
20 minutes  
3 times per week

REFILL \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
0 1 2 3 PRN Mark Timmerman (MD)/PA-C

# Resources:

- (A) “Reduction in Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin”, Diabetes Prevention Program Research Group, New England Journal of Medicine 2002; 346: 393-403
- (B) “Effects of Exercise Training on Older Patients With Depression”, James A. Blumenthal PhD, et al, Archives of Internal Medicine 1999; 159 (19):2349-2356
- (C) “Age-Specific Relevance of Usual Blood Pressure to Vascular Mortality: A Meta-Analysis of Individual Data for One Million Adults in 61 Prospective Studies”, Lexington S, et al, Lancet 2002 Dec 14; 360(9349):1903-13
- Exercise is Medicine:
  - [www.exerciseismedicine.org](http://www.exerciseismedicine.org)
  - <http://exerciseismedicine.com.au/public/factsheets/>
  - “Exercise as Medicine - Evidence for Prescribing Exercise as Therapy in 26 Different Chronic Diseases”, BK Petersen and B Saltin, Scandinavian Journal of Medicine in Science in Sports, 25 November 2015
- International Journal of Sauna Studies: <http://saunaresearch.org>