



The Sedentary Athlete

**Introducing Exercise for the first
time... again**



Build on successes.

Everyone has to start somewhere



“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”

Put it in perspective

Hit it home



Write it down

Written directions are more readily followed.

Exercise is a prescription!

www.exerciseismedicine.org

Begin at the beginning

- Find out likes
- Find out when
- Find out with who
- Find out how often

When to do a stress test

- Have diabetes more than 10 years
- 35 y/o and DM with or without CVD risk factors
- Older than 30 y/o with BP > 140/90, smoker, dyslipidemia, and family hx of premature CAD
- Any of the “opathies” or metabolic syndrome
- Diabetic Autonomic Neuropathy

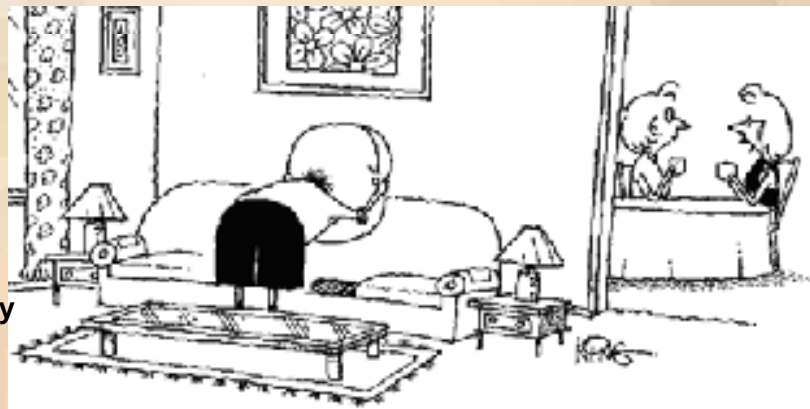


Activity Vs Exercise

Not the same

May avoid stigma but
Be sure you know the
differenc

Aerobic by definition is
sustained rhythmic activity
longer than 2 minutes



The doctor said he needed more activity. So
I hide his T.V. remote three times a week.

Why Exercise?

- **Increases strength to improve function and quality of life**
- **Decreases risks of major illnesses**
- **Improves anxiety levels and overall self image**
- **Most effective than any other option in the marketplace**

DPP

- 150 Min of ex/week
- 30 min 5x/day



Activity

- Choose and activity of the person's choice and liking
- <http://www.cdc.gov/physicalactivity>
- http://prevention.sph.sc.edu/tools/docs/documents_compendium.pdf
- <http://riskfactor.cancer.gov/tools/atus-met/met.php>
- http://www.cdc.gov/physicalactivity/downloads/PA_Intensity_table_2_1.pdf

MET

- <http://www.brianmac.co.uk/mets.htm>
- **Calculate METs into calories**

Pick a position

- **Standing**
- **Seated**



Resistance

- **Weights**



- **Exercise bands**

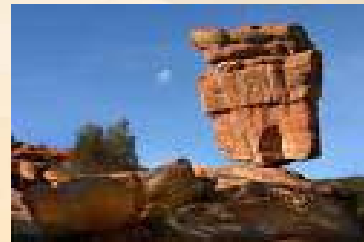


- **Gravity (Own Body weight)**



Base of Support

- **Wide**
- **Narrow**
- **Feet turned out**
- **Feet turned in**
- **Feet offset**



Direction of Movement

- **Forward**
- **Backward**
- **Laterally**
- **Rotation**
- **Upward**
- **Downward**



Speed

- **Fast**
- **Slow**
- **Somewhere in between**



Range of Motion

- Stay within painfree ROM



Cardiac Concerns

- **Thorough history**
- **Do stress test if necessary**
- **Blood pressure**
- **Medication**
 - **Beta blockers**
- **Nueropathy**

Before you get started

- **Submaximal Exercise test**
 - 6 min walk test
- **End Point**
 - 70%-85% of age predicted HRmax
 - RPE of 4-5
 - Carry a conversation without gasping for air.

6 Minute Walk Test

- Easy to administer
- High degree of validity and reliability
- Measures functional capacity
- Person can stop whenever they want and continue within the 6 minutes or stop altogether.
- If stop early note time that stopped
- <http://www.thoracic.org/statements/resources/pfet/sixminute.pdf>

Prediction equations

- **> 68 y/o**
 - **Women: $6MWD = 493 + (2.2 \times \text{height}) - (0.93 \times \text{weight}) - (5.3 \times \text{age})$**
 - **Men: add 17 to above equation**
 - **Use metric, meters and kilograms**
- **50 – 85 y/o**
 - **$6 MWD = 218 + (5.14 \times \text{height} - 5.32 \times \text{age}) - (1.8 \times \text{weight} + 51.31 \times \text{sex})$**
 - **Male = 1; female = 0**

Prediction Equation – All ages

- $6MWD = 868.8 - (\text{age} \times 2.99) - (\text{Gender} \times 74.7)$
- Female = 1, Male = 0

Conversions

- **Feet to meters**
 - Meters = feet x 0.3048
 - Feet = Meter x 3.2808
 - 5289 feet = 1 mile
- **Pounds to Kilogram**
 - Kilograms = pounds x 0.4536

Intensity

- **MOST CRITICAL FACTOR**
 - 70-90% HRmax or 55-75% VO2 max
 - Training sensitive zone

Determine Heart Rate

- **Linear relationship between HR and VO₂max**
- **Karvonen Method**
 - **[(220-age) – HR rest] x 0.6, 0.7, 0.8 then add HR rest**
 - **Tanaka – for older adults >65**
 - **[202 – (0.7 x age) – HR rest] x % HR max then add rest HR**

HR and VO2 max correlations

- **70% HRmax ~ 58-60 % VO2max**
- **80% HRmax ~ 70% VO2max**
- **90% HRmax ~ 85% VO2max**

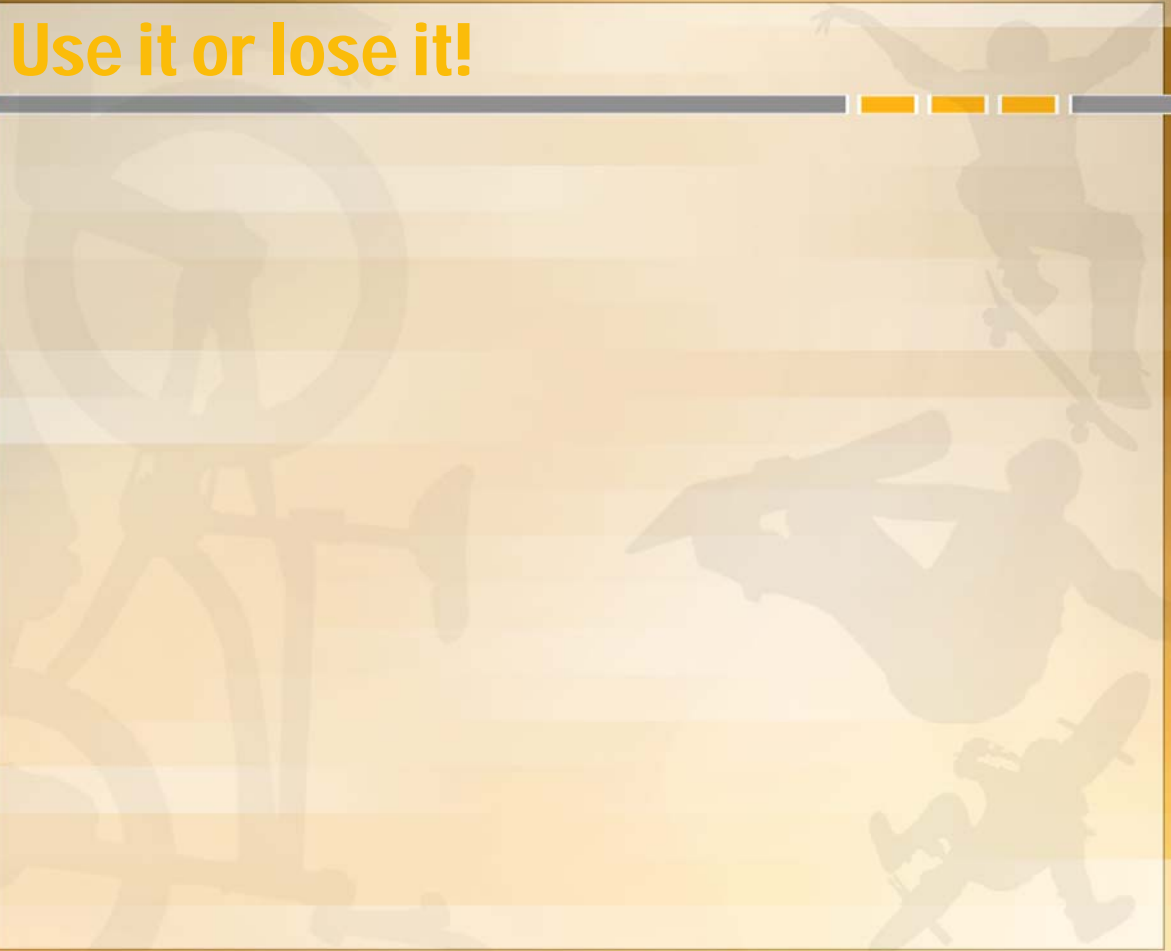
HR Considerations

- **Beta Blockers**
- **Autonomic neuropathy**
 - **Look for the sensory/motor, if present assume autonomic**
 - **Use RPE scale**

Exercise and Insulin Resistance

- **Exercise recommendations**
 - 5 days/week
 - Try for same time every day
 - Duration: optimal 40-60 minutes

Use it or lose it!



Potential Adverse Effects

- **Hypoglycemia in patients using insulin**
- **Complications for proliferative retinopathy – stay away from isometrics and valsalva**
- **Musculoskeletal or soft tissue injuries**
- **Foot injuries**

General precautions

- **Monitor blood glucose levels**
 - Before exercise begins
 - Exercise only if between 100mg/dl & 250-300mg/dl
 - If at high end measure after 15 min ex.
 - If BG < 70mg/dl – carbo snack and remeasure in 15 min

General Precautions

- **Avoid use of muscles around injection site**
- **Avoid exercise during peak insulin activity**
- **Light meal or carbohydrate snack before exercise**

General Precautions

- **Inform others about signs and symptoms of hypoglycemia and what to do.**
- **Be alert several hours after exercise**
 - Depleted muscle and hepatic glycogen stores are being replenished
 - May deplete blood glucose and cause symptoms
 - 6-15 hours after exercise

Musculoskeletal implications

- **Feet**
 - **Good shoes**
 - **Check feet after exercise**
 - **Don't overload**
 - **Neuropathy and balance, safety**

Be a coach

- **Inspire**
- **Encourage**
- **Give guidelines**
 - “be careful” is not a guideline

Conclusion

- **Exercise is a prescription and should be handled with care**
- **When in doubt, refer out**
- **The Physical Therapist is the most qualified professional to prescribe exercise across the continuum of care.**

Questions??

