

## Franciscan Care Services



## DIABETES

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- Individualized diet and exercise instruction has been shown a 58% reduction in the incidence of diabetes
- Halting the progression of diabetes**

(Tuomilehto J, Lindstrom J, Eriksson JG, N Engl J Med 2001;344:1342-1350)



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## Halting the progression of diabetes:

- 5% weight reduction
- Fat intake less than 30% of calories
- Saturated fat < 10% of calories
- Fiber intake 15g per 1000 kcal or more
- Exercise 150 per week



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## The Goal of any exercise program

- Personal
- Safe
- Minimizes Risk and Long Term Complications



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## "Younger Next Year" – Chris Crowley



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## The Goal for the Diabetic Participant

- Controlling HbA<sub>1c</sub>
  - < 7%
  - 1% reduction decrease heart risk 15-20%
- Blood pressure
  - 129/79 mm/hg
- Cholesterol
  - HDL < 40 mg/dl
  - Triglycerides < 150 mg/dl



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## Effects of Exercise in Diabetes Mellitus

- Cardiovascular
- Lipid and Lipoprotein Alterations
- Anthropometric Measures
- Metabolic Parameters
- Psychological Aspects



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## SEE PHYSICIAN BEFORE STARTING AN EXERCISE PROGRAM

- Cardiovascular risk
- Glucose –related medication requirement will change with activity
- Potential limitation secondary to lower extremity neuropathies



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## Common Risks

- Hypoglycemia - Blood Sugars < 100 ml/dl
- Hyperglycemia – Blood Sugars > 250 ml/dl



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## Self-blood glucose monitoring (SBGM)

- Primary mechanism to prevent hypoglycemia
- Reduction in insulin dosage 50-90% of daily dosage
- Based on the intensity, and duration and personal experience



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## Do SBGM – Check before and after each session

- > 250 ml/dl – Exercises should be postponed
- < 100 ml/dl – Eat snack before beginning exercise program
- 100-240 minutes of exercise recommended



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## Beginning an exercise program

- Do SBGM – Check before and after each session
- Keep a daily log of SBGM
- Begin Gradual
- Plan for exercise sessions
  - Time
  - Intensity
  - Need to carry extra carbohydrates for potential hypoglycemia
  - Hydrate before, during and after exercise
  - Consider working with a health provider to begin exercise program
- Adjust insulin accordingly
- Exercise with a partner
- Modify caloric intake accordingly
- Wear a diabetic identification tag
- Wear good shoes



## EXERCISE HEART RATE

- Determine Maximum Heart Rate
- $220 - \text{AGE} = \text{maximum heart rate}$
- Exercise Heart Rate (60-80% maximum heart rate)



## Determining Heart Rate

- Neck
- Wrist
- 10 seconds and multiple by 6 will equal heart beats per minute



## Exception to the Rule for Exercise Heart Rate

- Heart Medication which regulates you heart rate
- Use Perceived Exertion scale



## How Much Exercise Should I do?

- 150 min/week
- 20 min/day
- Prolonged exercise > than 30 min gradual shift from carbohydrate toward an increasing reliance on fat as a substrate



## What type of exercise should I do?

- Aerobic vs. resistive
  - moderate–intensity aerobic exercise
  - resistance exercise three times a week.



Exercise will improve your  
**QUALITY OF LIFE**



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## Exercise will **SAVE YOUR LIFE**

- The life expectancy of uncontrolled type 2 diabetes patients is reduced between 30-40 percent for those in the age range of 40-70 years of age, a loss of 8-10 years of life.

