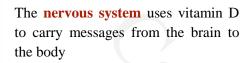
## How does the body use vitamin D?



The **immune system** uses vitamin D to fight bacteria and viruses

The **muscular system** uses vitamin D to move

**Bones** use vitamin D and calcium together to keep bone mass

#### How is diabetes and vitamin D related?

- Diabetic patients with liver and kidney dysfunction are at high risk for vitamin D deficiency. The liver and kidney metabolize vitamin D. Organ dysfunction can interrupt metabolism
- Vitamin D deficiency could be a contributing factor for type 1 and type 2 diabetes development
- Some evidence indicates vitamin D treatment improves glucose tolerance and insulin resistance

### Three D's to taking action

- Discuss vitamin D supplements with your doctor and mention all currently used medications and supplements
- O continue using sunblock to protect your body from skin cancer
- $\Box$ Dance outside in the sun and enjoy the precious present



# How much vitamin D do I need per day?

Adults 19 years-70 years	600IU
Adults 71 years or older	800IU
Pregnant and breastfeeding women	600IU

# What sources of vitamin D exist and how reliable are they?

*The sun*: Sun exposure increases vitamin D levels in the body. Sun exposure is inconsistent and limited in Centre County. Vitamin D production decreases under the following conditions:

- *Indoor sun exposure*: The skin cannot produce vitamin D from sunshine through a window
- Cloudy shady climates: Decreased exposure to sunlight under cloudy conditions decreases the skin's ability to produce vitamin D
- Sunblock use: Sunblock decreases exposure to vitamin D and is necessary in protecting the body from skin cancer.
- Clothing: Covered dress decreases sunlight exposure

*Food*: Very few foods naturally have vitamin D. For that reason, fortified foods are one of the best food sources of vitamin D. Check the label to ensure these foods have been fortified. Fortified foods include:

- Milk and yogurt
- Some brands of orange juice
- Breakfast cereal
- Fatty fish (natural source)

**Supplements**: Supplementing is a consistent and reliable way to obtain vitamin D. Discussing all supplement use with your doctor is important in avoiding drug nutrient interactions and toxicity. Supplements available include:

- $D_2$  Ergocalciferol
- ullet  $D_3$  Cholecalciferol: This option is more potent