

## FRACTURES of a major bone can be devastating among vulnerable older adults.

- 20% seniors who fracture their hips die within a year.
- Each hip fracture costs our health care system \$21,285 in the 1st year after hospitalization, and \$44,156 per year if long term care is required.
- 95% of all hip fractures in Canada were due to a fall.

## We use DXA

- to assess hip and spine bone mineral content and density.
- to evaluate total body, bone, fat and muscle mass.

## Dual-energy X-ray absorptiometry (DXA)



Manufacturer: Hologic  
Model: QDR 4500 (Medical Imaging Suites)

is the gold standard clinical instrument used to diagnose osteoporosis. DXA evaluates your bone mineral density (BMD) and compares your values to a large database of healthy individuals to provide you two "scores" - the T-score and the Z-score.

The T-score is your score compared with healthy young adults and the Z-score is your

score compared with individuals of the same age and sex.



### What is T-score?

T-score provides clinicians an idea of how your bone health compares with healthy young adult\*.

\*30 years of age on average

In general, a T-score of less than 2.5 indicates that you have osteoporosis and you may be at greater risk for fracture. To place this in context a T-score of -1 is within the normal range but indicates bone loss of about 10%. For each 10-15% of bone loss the possibility of fracture if you fall increases about 150%.



### DXA results for a healthy woman

68 years old  
T-score 0.5 (Normal)  
Z-score 2.1 (Normal)  
BSI 26.9 (Overweight)

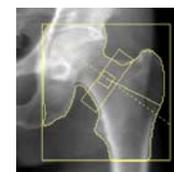
Hip T-Score 0.5 (Normal)



### DXA Results for a woman with "frail" bones

74 years old  
T-score -2.3 (Low; Osteopenia)  
Z-score -0.5 (Normal)  
BSI 14.7 (Underweight)

Hip T-Score -3.4 (Severe osteoporosis)



*"My hips are getting stronger and sending the signal to me that the old wound is healing."*

EXCEL research participant

## EXCEL Study: Exercise for Cognition and Everyday Living among seniors with Memory Complaints

Principal Investigator: Dr. Teresa Liu-Ambrose  
Funded by the Pacific Alzheimer Research Foundation

Dr. Teresa Liu-Ambrose's research is identifying exercise programs that work best for women who have osteoporosis and are at risk for falls: exercises that focus on either strength or agility, or programs that incorporate exercises for strength and agility equally.

The study has shown that right exercise can help women with osteoporosis reduce their risk of falls and fractures. In addition to improving quality of life for women with osteoporosis, a decrease in fractures also lessens the enormous health care costs associated with such injuries.

moving research into action