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**Title :** Osteoporosis in diabet patient

**Abstract** Osteoporosis is a bone condition defined by low bone mass, increased fragility, decreased bone quality, and an increased fracture risk, Type 1 diabetes has long been associated with low bone density, Type 2 diabetes was previously believed to provide bone protection because of its associated normal to increased BMD

**Introduction** Duration of diabetes seems to play a key role given the lower BMD found among patients who have had diabetes for >5 years. In the Iowa Women's Health Study, women with type 1 diabetes were 12.25 times more likely to report having had a fracture compared to women without diabetes,

type 2 When considering all of the risk factors, patients with diabetes generally have an increased risk of falling because of peripheral neuropathy, possible hypoglycemia, nocturia, and visual impairment. Because many type 2 diabetic patients are obese and sedentary, coordination and balance factors that are protective in falls may be absent. Thus, patients with generally larger body size and relatively high bone mass may have higher fracture rates. Conversely, patient groups with low BMD, such as Asians, may have lower fracture rates when one considers all factors in a risk assessment.

## **Discussion**

### **Type 1 diabetes**

Type 1 diabetes has long been associated with low bone density. However, it was unclear until recently whether this translated into increased fracture rates. Results from the Nord-Trondelag Health Survey from Norway showed a significant increase in hip fracture rates among female type 1 diabetic patients compared to nondiabetic female patients.

Duration of diabetes seems to play a key role given the lower BMD found among patients who have had diabetes for >5 years. In the Iowa Women's Health Study, women with type 1 diabetes were 12.25 times more likely to report having had a fracture compared to women without diabetes.

The mechanism of bone loss in type 1 diabetes is still unknown, although several theories exist based on animal and cellular models. Insulin-like growth factors and other cytokines may influence diabetic bone metabolism. Diabetic retinopathy, advanced cortical cataracts, and diabetic neuropathy have all been associated with increased fractures. These are also risk factors for increased falls because of visual impairment and alterations in balance or gait.

For patients with type 1 diabetes, the initial onset of the disease often occurs at a young age, when bone mass is still being accrued. Thus, low bone mass would seem a likely complication of type 1 diabetes.

## **Type 2 diabetes**

Type 2 diabetes was previously believed to provide bone protection because of its associated normal to increased BMD. These reports were primarily based on the concept of BMD alone and were generally not from prospective controlled large trials.

When considering all of the risk factors, patients with diabetes generally have an increased risk of falling because of peripheral neuropathy, possible hypoglycemia, nocturia, and visual impairment. Because many type 2 diabetic patients are obese and sedentary, coordination and balance factors that are protective in falls may be absent. Thus, patients with generally larger body size and relatively high bone mass may have higher fracture rates. Conversely, patient groups with low BMD, such as Asians, may have lower fracture rates when one considers all factors in a risk assessment.

Bone quality changes may also be affected by microvascular events common in diabetes. In a large prospective study of older women obtained from the Study of Osteoporotic Fractures, confirmed that women with type 2 diabetes experience higher fracture rates in regions of the hip, humerus, and foot than do nondiabetic women. Bone loss has been observed to be greater in patients with poorly controlled diabetes than in those whose diabetes is in good control.

## **Conclusion**

For patients with type 1 diabetes, the initial onset of the disease often occurs at a young age, when bone mass is still being accrued. Thus, low bone mass would seem a likely complication of type 1 diabetes.

And for type 2 diabetic patients who are obese and sedentary, coordination and balance factors that are protective in falls may be absent. Thus, patients with generally larger body size and relatively high bone mass may have higher fracture rates.

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