PMID	First Author	Title	Year	Study Type	Country	Setting	Blinding	Int Length	Total Study Duration	Main Study Objective	Target N	Target Population	Eligibility Criteria	Patient Characteristics	Int. # at Baseline (# at Followup)	Int. Type	Specific Intervention	Control (# at Baseline (# at followup))	Specific Control	Outcome Measures	Results/OC	Significance	Safety and Adverses Events	Additional Findings	Summary
	International Society for Clinical Densiometry	Official positions 2015 ISCD combined: official positions of the International society for clinical densiometry	2015	Position paper	International																				
25182228	Cosman, 2014	Clinician's Guide to Prevention and Treatment of Osteoporosis	2014	Guideline	United States																				
21242342	U.S. Preventive Services Task Force	Screening for osteoporosis: U.S. Preventive Services Task Force Recommendation Statement	2011	Recommendation Statement	United States																				
10780863	Hannan, 2000	Risk factors for longitudinal bone loss in elderly men and women: the Framingham Osteoporosis Study	2000	Observational	United States	Community			4-5 years	To evaluate risk factors for bone loss in elderly women and men.	800	Elderly men and women		Mean age at baseline was 74 years +/-4.5 years (range, 67-90 years).						Change in bone mineral density (BMD) at the hip, radius, and spine in elders.	Average 4-year BMD loss for women (range, 3.4-4.8%) was greater than the loss for men (range, 0.2-3.8%) at all sites, however, BMD fell with age in both elderly women and elderly men. For women, lower baseline weight, weight loss in interim, and greater alcohol use were associated with BMD loss. Women who gained weight during the interim gained BMD or had little change in BMD. For women, smoking was associated with greater bone loss than nonusers; at the femoral neck, nonusers lost up to 2.7% more BMD. For men, lower baseline weight and weight loss also were associated with BMD loss. Men who smoked cigarettes at baseline lost more BMD at the trochanter site.				Risk factors consistently associated with bone loss in elders include female sex, thinness, and weight loss, while weight gain appears to protect against bone loss for both men and women. Current estrogen use may help to maintain bone in women, whereas current smoking was associated with bone loss in men.
10824237	Huopio, 2000	Risk factors for perimenopausal fractures: a prospective study	2000	Observational	Finland	Community			3.6 years	To determine the risk factors for the development of fractures in perimenopausal women.	3068	Women aged between 47 and 56 years.								Fracture incidence	During the follow-up period of 3.6 years, 257 (8.4%) of the women sustained at least one fracture and 45 (1.5%) sustained two fractures. A previous fracture was found to be 1.4 (95% confidence interval (CI) 1.2-1.6) for a 1 standard deviation (SD) decrease in the spinal and femoral neck bone mineral density (BMD). Women with a previous fracture history were found to have an increased risk of fracture [RR 1.7 (95% CI 1.3-2.2) and those reporting three or more chronic illnesses exhibited a RR of 1.4 (95% CI 1.0-1.9). Women not using hormone replacement therapy (HRT) had a RR of 1.5 (95% CI 1.1-2.2) for all fracture types. When osteoporotic fractures (n = 158) were used as an endpoint, the RR was 1.8 (95% CI 1.2-2.7). When as an endpoint, the independent risk factors were found to be a low BMD (RR for a 1 SD decrease in both spinal and femoral neck BMD was 1.6, 95% CI 1.3-2.0), a previous fracture history (RR 1.9, 95% CI 1.3-2.9) and nonuse of HRT (RR 2.2, 95% CI 1.3-4.0). The independent risk factors for all other fractures (n = 158) were a low BMD (RR for a 1 SD decrease in the spinal BMD was 1.4, 95% CI 1.2-1.8 and in the femoral neck BMD was 1.3, 95% CI 1.1-1.5), a previous fracture history (RR 1.8, 95% CI 1.1-2.2), smoking (RR 1.6, 95% CI 1.1-2.7) and having had three or more chronic illnesses (RR 1.8, 95% CI 1.1-2.2).				Weight, height, age, menopausal status, maternal hip fracture, use of HRT, smoking, chronic illnesses, physical activity were not independently associated with the development of any kind of type of fracture. Independent risk factors for perimenopausal fractures are a low bone density, previous fracture history, nonuse of HRT, having had three or more chronic illnesses and smoking, the gradient of risk being similar for spinal and femoral neck BMD measurements in the perimenopausal population. The risk factors are slightly different for perimenopausal osteoporotic than for other types of fractures.
10355374	Holdrup, 1999	Alcohol intake, beverage preference, and risk of hip fracture in men and women	1999	Observational	Denmark	Community			28 years	To study the association between quantity and type of alcohol intake and risk of hip fracture in men and women.	17,868 men and 13,917 women	Men and women								Fracture incidence	During follow-up, 500 first hip fractures were identified in women and 307 in men. A low to moderate weekly alcohol intake (1-27 drinks for men and 1-13 drinks for women) was not associated with hip fracture. Among men, the adjusted relative risk of hip fracture for those drinking 28 drinks per week or more per week (relative risk (RR) = 1.75; 95% confidence interval (CI) 1.08-2.89 for 28-41 drinks; RR = 5.28, 95% CI 2.60-10.70 for 70 or more drinks) as compared with abstainers. Women who drank 14-27 drinks per week had an age-adjusted relative risk of hip fracture of 1.44 (95% CI 1.03-2.03); but the corresponding relative risk for those drinking 28 drinks per week was 1.71 (95% CI 0.92-1.87). The risk of hip fracture differed according to the type of alcohol preferred: preferers of beer had a higher risk of hip fracture (RR = 1.46, 95% CI 1.11-1.91) than preferers of other types of alcoholic beverages. The corresponding relative risks for preferers of wine and spirits were 0.77 (95% CI 0.58-1.03) and 0.82 (95% CI 0.58-1.14), respectively.				In conclusion, an alcohol intake within the current European drinking limits does not influence the risk of hip fracture, whereas an alcohol intake of more than 27 drinks per week is a major risk factor for men.
10126951	Ulrich, 1999	Lifetime physical activity is associated with bone mineral density in postmenopausal women	1999	Observational	United States	Community				Investigate what type of physical activity during what age periods is most beneficial for bone mass and density.	25	Premenopausal women		Mean age 41 years, range 28-50 years						BMD of the total, entire axial, and entire peripheral skeleton were measured by dual energy x-ray absorptiometry (DXA).	Lifetime weight-bearing exercise was significantly correlated with total and peripheral BMD (total BMD: r = 0.54, peripheral BMD: r = 0.54, all p < 0.05). Total weight-bearing physical activity, including occupational and household activity, was associated with total BMD (r = 0.51, p < 0.05). Physical activity during early age periods was more strongly associated with BMD at all sites than was physical activity in the past 2 years.				Lifetime weight-bearing exercise is more strongly related to BMD of the total and peripheral skeleton than is nonweight-bearing exercise. The inclusion of nonweight-bearing activity resulted in a weakening of the association. Weight-bearing household and occupational activity appeared to be related to BMD. These results support recommendations to increase physical activity throughout life, particularly during early ages, as a means of osteoporosis prevention.
9611900	Hailey, 1998	The effectiveness of bone density measurement and associated treatments for prevention of fractures: an international collaborative review	1998	Evidence Review	International					To assess the evidence regarding the effectiveness of bone density measurement (BDM) screening and related interventions – hormone replacement therapy (HRT) and intranasal salmon calcitonin (SCTN)] – in menopausal women to prevent fractures in later life.										Relative risk of fracture for a 1 SD decrease in bone mineral density below the age-adjusted mean; relative risks or odds ratios for fractures associated with treatments, and proportion of hip fractures potentially prevented by BDM screening linked to treatments.	Fair evidence from prospective cohort studies suggests that BDM can predict the risk of fractures, but not with high accuracy. Fair evidence from low-quality randomized controlled trials and observational studies suggests that HRT and SCTN are associated with increased bone mass, but there is uncertain evidence the efficacy of these treatments in preserving bone mass, but there is fair evidence that the effect wears off after cessation of therapy. There is little evidence on the impact of screening menopausal women with BDM in association with HRT or SCTN treatment. Estimates based on combining existing evidence regarding the predictive value of BDM and efficacy of HRT suggests that 1-7% of hip fractures might be prevented.				
21951471	Miller, 2012	Efficacy of monthly oral ibandronate is sustained over 5 years: the MOBILE long-term extension study	2012	Observational	United States				5 years	To investigate the efficacy of monthly oral ibandronate over 5 years.	244	Postmenopausal women who had completed 2 years of the MOBILE core study, with ≥75% adherence.								Bone mineral density	A pooled intent-to-treat (ITT) analysis of 344 patients receiving monthly ibandronate from the core MOBILE baseline showed increases over 5 years in lumbar spine BMD (4.2% with 150 mg and 6.4% with 150 mg). Three-year data relative to MOBILE LTE baseline in the full ITT population (of 869 patients randomized to receive monthly oral ibandronate in the core study, regardless of on daily treatment) showed, on average, maintenance of proximal femur BMD; gains achieved in the core 2-year study, with further small gains in lumbar spine BMD. In general, maintenance of efficacy was also indicated by markers of bone metabolism.				There were no tolerability concerns or new safety signals. Monthly treatment with ibandronate 100 and 150 mg is effective and well tolerated for up to 5 years in women with postmenopausal osteoporosis.
18290172	Eisman, 2008	Efficacy and tolerability of intravenous ibandronate injections in postmenopausal osteoporosis: 2-year results from the DIVA study	2008	Randomized controlled trial	United States	Clinical	Double-blind, double-dummy		2 years	To identify the optimal ibandronate IV injection schedule for the treatment of postmenopausal osteoporosis by comparing the efficacy and tolerability of 2- and 3-monthly injections with the previously evaluated daily oral ibandronate regimen.	1395	Postmenopausal women		Aged 55-80 yrs, > or = 5 yrs since menopause) with osteoporosis [mean lumbar spine (L2-L4) BMD T-score < -2.5 and > or = -5.0			Patients received IV ibandronate (2 mg every 2 mo or 3 mg every 3 mo) plus daily oral placebo.	2.5 mg daily oral ibandronate plus 2- or 3-monthly IV placebo	Effects on lumbar spine and proximal femur bone mineral density (BMD) and bone resorption markers over 2 years.	At 2 years, the 2- and 3-monthly IV regimens achieved statistically noninferior and also superior increases in lumbar spine BMD compared with the daily regimen (6.4% and 6.3% vs 4.8%, respectively; p < 0.001). Greater increases were also obtained with IV ibandronate versus daily in proximal femur BMD. Reductions in markers of bone turnover (serum CTX, urinary CTX, bone-specific alkaline phosphatase of the alpha-chain of type I collagen were reduced to a similar extent in all treatment arms (53.4%-58.9%). The tolerability profile of the IV regimens was similar to that observed with daily oral therapy.				Ibandronate IV injections are an effective and well tolerated treatment for postmenopausal osteoporosis and provide a useful alternative to oral dosing.
17476057	Black, 2007	Once-yearly zoledronic acid for treatment of postmenopausal osteoporosis	2007	Randomized controlled trial	United States	Clinical	Double-blind		36 months	To assess the effects of annual infusions of zoledronic acid on fracture risk during a 3-year period.		Postmenopausal women		Mean age, 73 years	3,889		A single 15-minute infusion of zoledronic acid (5 mg)	3,876	Placebo	Primary end points were new vertebral fracture (in patients not taking concomitant osteoporosis medications) and hip fracture (in all patients). Secondary end points included bone mineral density, bone turnover markers, and safety outcomes.	Treatment with zoledronic acid reduced the risk of morphometric vertebral fracture by 70% during a 3-year period, as compared with placebo (3.3% in the zoledronic-acid group vs. 10.9% in the placebo group; relative risk, 0.30; 95% confidence interval [CI], 0.24 to 0.38) and reduced the risk of hip fracture by 41% (1.4% in the zoledronic-acid group vs. 2.5% in the placebo group; hazard ratio, 0.59; 95% CI, 0.36 to 0.96). Clinical vertebral fractures, nonvertebral fractures, and clinical vertebral fractures were reduced by 25%, 33%, and 77%, respectively (P<0.001 for all comparisons). Zoledronic acid was also associated with a significant improvement in bone mineral density and bone metabolism markers. Adverse events, including change in renal function, were similar in the two study groups. However, serious atrial fibrillation occurred more frequently in the zoledronic acid group (in 50 vs. 20 patients, P=0.001).				A once-yearly infusion of zoledronic acid during a 3-year period significantly reduced the risk of vertebral, hip, and other fractures.
	Chesnut, 2005	Ibandronate produces significant, similar antifracture efficacy in North American and European women: new clinical findings from BONE	2005	Randomized controlled trial	United States	Clinical	Double-blind			To investigate and report the effect of oral ibandronate in North American and European women.	2946	Postmenopausal women		Age 55 years-80 years, > or = 5 years since menopause			Daily calcium (500 mg) and vitamin D (400 IU) plus either placebo, oral daily ibandronate (2.5 mg) or oral intermittent ibandronate (20 mg every other day for 12 doses every 3 months)			Fracture risk	Consistent, significant efficacy was observed in the North American (new vertebral fracture risk reduction: 60% and 54% with daily and intermittent ibandronate, respectively) and European patient populations (50% and 48%, respectively). Both ibandronate regimens also significantly reduced the incidence of new, worsening, and acute clinical, vertebral fractures. Daily and intermittent ibandronate significantly increased bone density at the spine in both North American (8.4% and 4.4% vs. baseline with daily and intermittent ibandronate, respectively; P<0.001 and 3.7% vs. 1.3%, P<0.01, respectively) populations. Significant increases were also observed for total hip bone density (2.6% and 3.7% vs. baseline for daily, and 2.5% and 3.1% for intermittent; North American and European populations, respectively). Comparable, significant decreases in biochemical markers of bone turnover (reductions in urinary excretion of C-telopeptide levels of 53.6% and 67.1% vs. baseline for daily, and 50.0% and 53.8% for intermittent; North American and European populations, respectively) were observed in both study populations (p < 0.004 for all cited measurements in each ibandronate group vs. placebo). Oral ibandronate was well tolerated in both North American and European patients, with a safety profile similar to placebo.				Oral ibandronate, administered daily or intermittently, effectively reduced vertebral fracture risk in North American and European women with postmenopausal osteoporosis. These results demonstrate the efficacy of ibandronate administered with extended dose-free intervals, regardless of patients' geographical origin. Research investigating other less frequent ibandronate regimens, such as once-monthly oral administration, is underway.
15231050	Chesnut, 2004	Effects of oral ibandronate administered daily or intermittently on fracture risk in postmenopausal osteoporosis	2004	Randomized controlled trial	United States	Clinical	Double-blind		3 years	To prospectively show antifracture efficacy for the intermittent administration of a bisphosphonate.	2,946	Postmenopausal women with a BMD T-score < or = -2.0 at the lumbar spine in at least one vertebra (L1-L4) and one to four prevalent vertebral fractures (T4-L4).				Oral ibandronate administered either daily (2.5 mg) or intermittently (20 mg every other day for 12 doses every 3 months).		Placebo	The efficacy and safety of oral ibandronate administered either daily or intermittently with a dose-free interval of >2 months.	After 3 years, the rate of new vertebral fractures was significantly reduced in patients receiving oral daily (4.7%) and intermittent ibandronate (4.9%), relative to placebo (9.8%). Thus, daily and intermittent oral ibandronate significantly reduced the risk of new morphometric vertebral fractures by 62% (p = 0.0001) and 50% (p = 0.0006), respectively, versus placebo. Both treatment groups also produced a statistically significant relative risk reduction in clinical vertebral fractures (46% and 48% for daily and intermittent ibandronate, respectively). Significant and progressive increases in lumbar spine (6.5%, 5.7%, and 1.3% for daily ibandronate, intermittent ibandronate, and placebo, respectively, at 3 years) and hip BMD, normalization of bone turnover, and significantly less height loss than in the placebo group were also observed for both ibandronate regimens. The overall incidence of adverse events was comparable among the 3 groups. The incidence of nonvertebral fractures was similar between the ibandronate and placebo groups after 3 years (9.1%, 8.9%, and 6.2% in the daily, intermittent, and placebo groups, respectively; difference between arms not significant). However, findings from a posthoc analysis showed that the daily regimen reduces the risk of nonvertebral fractures (60%, p = 0.012) in a higher-risk subgroup (femoral neck BMD T score < -3.0). In addition, oral ibandronate was well tolerated.				Oral ibandronate, whether administered daily or intermittently with an extended between-dose interval of >2 months, is highly effective in reducing the incidence of osteoporotic fractures in postmenopausal women. This is the first time that significant fracture efficacy has been prospectively shown with an intermittently administered bisphosphonate in the overall study population of a randomized, controlled clinical trial. Thus, oral ibandronate holds promise as an effective and convenient alternative to current bisphosphonate therapies.
28144751	McClung, 2017	Observations following discontinuation of long-term denosumab therapy	2017	Observational	United States				1 year	To understand osteoporosis management strategies during a 1-year observational follow-up after up to 8 years of denosumab treatment in a phase 2 study.	138 eligible, 82 enrolled									Incidence of serious adverse events and fractures	Of 138 eligible patients, 82 enrolled in and completed the observation study. Most (65.[7]%) did not receive prescription osteoporosis medication, with "my doctor felt I no longer needed a medication" being the most common reason (n = 18). Bone mineral density increased after denosumab discontinued therapy during the observation study. In patients treated with denosumab for 8 years (N = 52), BMD decreased during the 1-year observation study (6.7% [lumbar spine], 6.8% [total hip]). Those who took osteoporosis medication during the observation study showed a smaller decline in BMD than those who did not. No new safety concerns were identified. Eight patients (9.8%), all of whom had at least one predisposing risk factor, experienced 17 fractures. This included seven patients who experienced one or more vertebral fractures.				Consistent with denosumab's mechanism of action, treatment cessation led to reversal of the drug's effect on BMD and perhaps fracture risk. For patients who took osteoporosis therapy, bone loss was attenuated. For patients at high fracture risk, switching to another osteoporosis therapy if denosumab is discontinued seems appropriate.
11095442	Black, 2000	Fracture risk reduction with alendronate in women with osteoporosis: the fracture intervention trial	2000	Observational	United States					To examine the effect of alendronate treatment for 3-4 yr on risk of new fracture among 3658 women with osteoporosis enrolled in the Fracture Intervention Trial.	3658	Women with osteoporosis enrolled in the Fracture Intervention Trial.								Fracture incidence	Baseline characteristics of women randomized to alendronate were similar in both groups. The two groups were, therefore, pooled to obtain a more precise estimate of the effect of alendronate on relative risk of fracture (relative risk, 95% confidence interval): hip (0.47, 0.26-0.79), radiographic vertebral (0.52, 0.42-0.66), clinical vertebral (0.55, 0.36-0.82), and all clinical fractures (0.70, 0.59-0.82). Reductions in risk of clinical fracture were statistically significant by 12 months into the trial.				Reductions in fracture risk during treatment with alendronate are consistent in women with existing vertebral fractures and those without such fractures but with bone mineral density in the osteoporotic range. Furthermore, reduction in risk is evident early in the course of treatment.
10843171	Pogettman, 2000	Risendronate reverses bone loss in postmenopausal women with low bone mass: results from a multinational, double-blind placebo controlled trial	2000	Randomized controlled trial	International		Double-blind			To investigate the efficacy and tolerability of risedronate in postmenopausal women with low bone mass.	543	Postmenopausal women with low bone mass.		Women with a mean lumbar spine T-score of -2 or less (n = 543) received 24 months of placebo or risedronate (2.5 or 5 mg/day). All received calcium (1 g/day).						The principal outcome measures were bone mineral density (BMD) at the lumbar spine, femoral neck, and femoral trochanter.	At 24 months, lumbar spine BMD increased from baseline by 4% with 5 mg risedronate and 1.4% in the 2.5-mg group, compared with no change with placebo (P<0.001 for comparison between 5 mg and placebo). In women more than 5 yr postmenopausal, At 24 months, risedronate (5 mg) had also increased BMD at the femoral neck and trochanter, whereas BMD decreased in the placebo group. BMD increases were seen at all three sites with risedronate (5 mg) after only 6 months of therapy. Risedronate was well tolerated; upper gastrointestinal adverse events were similar to placebo.				Risedronate (5 mg) increases BMD rapidly and effectively and is well tolerated in postmenopausal women with low bone mass, regardless of time since menopause.
	Harris, 1999	Effects of risedronate treatment on vertebral and non-vertebral fractures in women with postmenopausal osteoporosis	1999	Randomized controlled trial	United States	Ambulatory	Double-blind		5 years	To test the efficacy and safety of daily treatment with risedronate to reduce the risk of vertebral and other fractures in postmenopausal women with established osteoporosis.	2458	Postmenopausal women younger than 85 years with at least 1 vertebral fracture at baseline				Oral treatment for 3 years with risedronate (2.5 or 5 mg/d)		Placebo	Incidence of new vertebral fractures as detected by quantitative and semiquantitative assessments of radiographs, incidence of radiographically confirmed nonvertebral fractures and change from baseline in bone mineral density as determined by dual x-ray absorptiometry.	No 2.5 mg/d of risedronate arm was discontinued after 1 year; in the placebo and 5 mg/d of risedronate arms, 450 and 489 subjects, respectively completed all 3 years of the trial. Treatment with 5 mg/d of risedronate, compared with placebo, decreased the cumulative incidence of new vertebral fractures by 41% (0.055 vs. 0.094; confidence interval [CI], 0.04-0.07) over 3 years (11.3 vs. 18.4%; P<0.001). Significant reduction (by 65%; 95% CI, 0.1-0.9) was observed after the first year (2.4% vs. 6.4%; P=.001). The cumulative incidence of nonvertebral fractures over 3 years was reduced by 30% (95% CI, 6%-41 %) (5.2 % vs 8.4%; P = .02). Bone mineral density increased significantly compared with placebo at the lumbar spine (5.4% vs 1.1 %), femoral neck (1.6% vs -1.2%), femoral trochanter (3.3% vs -0.7%), and midshaft of the radius (0.2% vs -1.4%). Bone formed during risedronate treatment was histologically normal. The safety profile of 5 mg/d of risedronate, including gastrointestinal safety, was similar to that of placebo.				Risedronate therapy is effective and well tolerated in the treatment of women with established postmenopausal osteoporosis.
25944751	Chen, 2015	Efficacy of bisphosphonates against osteoporosis in adult men: a meta-analysis of randomized controlled trials	2015	Meta-analysis	China					To analyse the efficacy of administration of bisphosphonates in men based on published RCTs.	Nine RCTs were included and the total number of participants was 2,464.										Compared with placebo, the efficacy of bisphosphonates on vertebral and non-vertebral fracture risk reduction was confirmed (for vertebral fracture, RR (95 % CI) [0.32 (0.32, 0.84), P < 0.01]; for non-vertebral fracture, RR (95 % CI) [0.32 (0.32, 0.84), P < 0.01]) and heterogeneity was insignificant. The efficacy of bisphosphonates on reducing BSAP [MD (95 % CI) -24.41 (-28.19, -20.62), P < 0.001] and CTX [MD (95 % CI) -0.29 (-0.34, -0.24), P < 0.001] was significant. A sensitivity analysis was applied to explain the origination of heterogeneity in analysis of decreasing of BSAP. BMD was increased in the bisphosphonates group compared with the control group at lumbar spine, femoral neck, and total hip (P < 0.01), and the heterogeneity of all comparisons was significant.				Compared with placebo, bisphosphonates could decrease the risk of vertebral and non-vertebral fractures, reduce BSAP and CTX, and increase BMD in men with osteoporosis.
10555025	Cohen, 1999	Risedronate therapy prevents corticosteroid-induced bone loss: a twelve-month, multicenter, randomized, double-blind, placebo-controlled, parallel-group study	1999	Randomized controlled trial	United States		Double-blind		12 months	To examine the safety and efficacy of daily, oral risedronate therapy for the prevention of corticosteroid-induced bone loss.	224	Men and women who were initiating long-term corticosteroid treatment.				Risedronate (2.5 mg or 5 mg)		Placebo	The primary outcome measure was the percentage of change in lumbar spine bone mineral density (BMD). Secondary measures included proximal femur BMD and incidence of vertebral fractures.	After 12 months, the lumbar spine BMD (mean +/- SEM) did not change significantly compared with baseline in the 5-mg (0.6 +/- 0.5%) or the 2.5-mg (-0.1 +/- 0.7%) risedronate groups, while it decreased in the placebo group (-2.1 +/- 0.6%; P = 0.0016 versus the risedronate groups). The difference between risedronate and the placebo groups were 3.8 +/- 0.8% at the lumbar spine (P < 0.001), 4.1 +/- 1.0% at the femoral neck (P < 0.001), and 4.6 +/- 0.8% at the femoral trochanter (P < 0.001). A trend toward a decrease in the incidence of vertebral fracture was observed in the 5-mg risedronate group compared with the placebo group (5.7% versus 17.3%; P = 0.072). Risedronate was well tolerated, and the incidence of upper gastrointestinal adverse events was comparable among the 3 groups.				Risedronate therapy prevents bone loss in patients initiating long-term corticosteroid treatment.
9682041	Saag, 1998	Alendronate for the prevention and treatment of glucocorticoid-induced osteoporosis	1998	Randomized controlled trial	United States				48 weeks	To investigage alendronate for the prevention and treatment of glucocorticoid-induced osteoporosis.	477	Men and women, 17 to 83 years of age, who were receiving glucocorticoid therapy.							The primary end point was the difference in the mean percent change in lumbar spine BMD from the baseline to week 48 between the groups. Secondary outcomes included changes in bone density of the hip, biochemical markers of bone turnover, and the incidence of new vertebral fractures.	The mean (+/-SE) bone density of the lumbar spine increased by 2.1+/-0.3 percent in the group (P<0.01) receiving 5 mg of alendronate per day and by 1.0+/-0.4 percent in the group receiving 10 mg of alendronate per day (P=0.001) and decreased by 0.4+/-0.3 percent in the placebo group. The femoral-neck bone density increased by 1.2+/-0.4 percent and 1.0+/-0.4 percent in the respective alendronate groups (P<0.01) and decreased by 1.2+/-0.4 percent in the placebo group (P=0.01). The bone density of the trochanter and total body also increased significantly in the patients treated with alendronate. There were proportionally fewer new vertebral fractures in the alendronate groups (2 percent and 1 percent) than in the placebo group (3.7 percent) (relative risk, 0.6; 95 percent confidence interval, 0.1 to 4.4). Markers of bone turnover decreased significantly in the alendronate groups (P<0.001). There were no differences in serious adverse effects among the three groups, but there was a small increase in nonserious upper gastrointestinal effects in the group receiving 10 mg of alendronate.				Alendronate increases bone density in patients receiving glucocorticoid therapy.