Supplemental Digital Content 5. Mapping of Items through Delphi Process

	Round 1 Items	Round 2 Items	Round 3 Items	Round 3 Potential Save Items
History Items				
	Bone-friendly & bone-hazardous medication history	Bone-friendly & bone-hazardous medication history	*Current medications associated with fall risk and bone loss*	Ergonomic risk factors (living/work/recreational settings)
	Bone-health related comorbidities (auto-immune disorders, medication-dependent depression, cancer, compromised pulmonary health, diabetes. seizure disorders)	Bone-health related comorbidities (auto-immune disorders, medication-dependent depression, cancer, compromised pulmonary health, diabetes. seizure disorders)	Bone-health related comorbidities	*Bone health-related nutritional status/diet*
	Current exercise routine including type, duration, frequency, etc.	Current exercise routine including type, duration, frequency, etc.	*History of exercise and physical activity*	Historical height loss
	Current medications associated with fall risk	Current medications associated with fall risk	*History of falls, near falls, and fear of falling*	History of vestibular dysfunction
	Ergonomic risk factors (living/work situation)	Ergonomic risk factors (living/work situation)	*History of fracture*	*Results from prior bone mineral density assessments and imaging studies.*
	Falls history	Falls history		
	Family bone-health history	Family bone-health history		
	Fracture history	Fracture history		
	Historical height loss	Historical height loss		
	Physical activity history (community ambulator, any changes related to pain or fatigue)	Physical activity history (community ambulator, any changes related to pain or fatigue)		
	Results from prior bone mineral density assessments (DXA)	Results from prior bone mineral density assessments (DXA)		
	Results from prior bone-related imaging studies (radiographs, CT)	Results from prior bone-related imaging studies (radiographs, CT)		
		Absolute fracture risk score		
		Average time spent sitting each day		
		FRAX® Risk		

		History of vestibular dysfunction		
		Lab Results (e.g., vitamin D levels, CTX, P1NP levels)		
		Menstrual history and periods of amenorrhea (for females)		
		Nutrition status/Diet (e.g., calcium intake, carbonated beverages)		
		Nutrition supplements (e.g., calcium, vitamin D)		
	* Abbreviations: (dual-energy X-ray absorptiometry (DXA); computed tomography (CT); serum cross-linked C-telopeptide of type I collagen (CTX); procollagen type 1 N-terminal propeptide (P1NP); Fracture Risk Assessment Tool (FRAX®)			
Tests and Measures Items				
	Balance outcome measures (e.g., BBS, TAT, DGI, BESTest)	Balance outcome measures (e.g., BBS, TAT, DGI, BESTest)	Assessment of static and dynamic balance	Rib to pelvis distance
	Body region specific functional outcome measures (e.g., ODI, LEFS, QuickDASH)	Body region specific functional outcome measures (e.g., ODI, LEFS, QuickDASH)	Balance-related outcomes	Assessment of pain
	Confidence and mobility scales (e.g., Activities-specific Balance Confidence Scale)	Confidence and mobility scales (e.g., Activities-specific Balance Confidence Scale)	Functional lower extremity strength	Confidence and mobility scales
	Current height and weight	Current height and weight	Observational gait analysis	Current height & weight
	Dynamic standing balance (e.g., Functional Reach Test)	Dynamic posture testing		Dynamic posture testing
	Endurance tests (e.g., 6-minute walk test)	Endurance tests (e.g., 6-minute walk test)		Endurance tests
	Functional lower extremity strength (e.g., 5x sit to stand, 30 second chair rise)	Functional lower extremity strength (e.g., 5x sit to stand, 30 second chair rise)		Lower quarter strength
	Grip strength	Grip strength		Quantification of thoracic kyphosis
	Joint varus/valgus (e.g., hip, knee, rear foot)	Joint varus/valgus (e.g., hip, knee, rear foot)		Relevant ROM/flexibility measurements
	Leg length	Leg length		
	Lower quarter joint mobility	Lower quarter joint mobility		

Lower quarter strength (e.g., MMT, dynamometer)	Lower quarter strength (e.g., MMT, dynamometer)
Navicular to floor distance	Navicular to floor distance
Observational gait analysis	Observational gait analysis
Pain (e.g., visual analogue scale, numeric rating scale)	Pain (e.g., visual analogue scale, numeric rating scale)
Palpation for trigger points, fibrotic tissue	Palpation for trigger points, fibrotic tissue
Quality of life scales (e.g., ECOS-16)	Quality of life scales (e.g., ECOS-16)
Quantification of thoracic kyphosis (e.g., Flexicurve, inclinometer, tragus to wall)	Quantification of thoracic kyphosis (e.g., Flexicurve, inclinometer, tragus or occiput to wall)
Relevant lower quarter ROM/flexibility measurements (patient-specific)	Relevant lower quarter ROM/flexibility measurements (patient-specific)
Relevant upper quarter ROM/flexibility measurements (patient-specific)	Relevant upper quarter ROM/flexibility measurements (patient-specific)
Rib to pelvis distance	Rib to pelvis distance
Spine joint mobility	Spine joint mobility
Static standing balance (e.g., single leg stance, 4 stage balance)	Static standing balance (e.g., single leg stance, 4 stage balance)
Timed loaded standing	Timed loaded standing
Torso strength (e.g., MMT, dynamometer)	Torso strength (e.g., MMT, dynamometer)
Trunk ROM (e.g., active and passive)	Trunk ROM (e.g., active and passive)
Two-joint flexibility (e.g., straight leg raise, Thomas test)	Two-joint flexibility (e.g., straight leg raise, Thomas test)
Upper quarter joint mobility	Upper quarter joint mobility
Upper quarter strength (e.g., MMT, dynamometer)	Upper quarter strength (e.g., MMT, dynamometer)
	Dynamic standing balance (e.g., functional reach test, Four Square Step Test)

	*Abbreviations: Berg Balance Scale (BBS); Tinetti Assessment Tool (TAT); Dynamic Gait Index (DGI); Balance Evaluation Systems Test (BESTest); range of motion (ROM); manual muscle test (MMT)			
Goals				
	Clinically important reduction in fall risk	Clinically important reduction in fall risk	Patient demonstrates knowledge and application of an exercise program that emphasizes bone-safe posture, resistance, aerobic, balance, and flexibility exercises.	Patient demonstrates confidence in performing bone-safe daily activities including exercise.
	Clinically important reduction in kyphosis	Clinically important reduction in kyphosis	Patient demonstrates knowledge and application of fall risk reduction strategies	Patient demonstrates knowledge and application of safe pain modulating activities.
	Patient understands and is engaged in a regular bone-safe resistance, aerobic, balance and flexibility exercise program	Patient engagement in a regular bone-safe resistance, aerobic, balance and flexibility exercise program	Patient demonstrates knowledge and application of fracture prevention strategies including slowing the rate of bone loss.	
	Patient understands fall prevention strategies	Patient demonstrates knowledge of fall prevention strategies	Patient demonstrates knowledge and application of safe and unsafe postures and movements	
	Patient understands fracture prevention strategies	Patient demonstrates knowledge of fracture prevention strategies		
	Patient understands safe and unsafe movements	Patient demonstrates knowledge and awareness of safe and unsafe movements		
	Patient understands safe and unsafe postures	Patient demonstrates knowledge and awareness of safe and unsafe postures		
	Patient understands safe pain modulating activities	Patient demonstrates knowledge of safe pain modulating activities		

	Patient understands strategies to slow the rate of bone loss	Patient demonstrates knowledge of strategies to slow the rate of bone loss		
	Patient's tissue mobility (e.g., joint capsules, muscles) is safely optimized	Patient's tissue mobility (e.g., joint capsules, muscles) is safely optimized		
		Patient demonstrates confidence in performing ADLs		
Interventions				
	Education on body mechanics to reduce fracture risk	Education on body mechanics to reduce fracture risk	Education on posture, body mechanics, and activity modification to reduce fracture risk during daily activities including exercise.	Aerobic exercise
	Balance training	Balance training	Balance training	Bone-healthy (fracture preventive and bone mineral density preserving) body mechanics patterns as exercise
	Resistance exercise	Resistance exercise	Resistance exercise	Flexibility/stretching exercise
	Education on activity modifications to reduce fall risk	Education on activity modifications to reduce fall risk	Education on posture, body mechanics, and activity modification to reduce fall risk	
	Bone-healthy body mechanics patterns as exercise	Bone-healthy body mechanics patterns as exercise		
	Flexibility/stretching exercises	Flexibility/stretching exercises		
	Education on activity modification to reduce fracture risk	Education on activity modification to reduce fracture risk		
	Education on body mechanics to reduce fall risk	Education on body mechanics to reduce fall risk		
	Education on posture to reduce fracture risk	Education on posture to reduce fracture risk		
	Education on posture to reduce fall risk	Education on posture to reduce fall risk		

Weight-bearing aerobics	Aerobic exercise
Soft tissue focused manual therapy techniques (e.g., muscle energy, deep tissue mobilization, trigger point release)	Soft tissue focused manual therapy techniques (e.g., muscle energy, deep tissue mobilization, trigger point release)
Joint focused manual therapy techniques (e.g., joint mobilizations)	Joint focused manual therapy techniques (e.g., joint mobilizations)
Use of patient-specific external orthotic or supportive devices (e.g., spinal orthotics, plantar orthotics, taping)	Management of patient-specific external orthotic or supportive devices (e.g., spinal orthotics, plantar orthotics, taping)
Electrical modalities	Electrical modalities
	Referral to a dietitian

Note: Items in bold indicate new items added based on panel responses; Items in italics indicate revised wording based on panel response; DXA = dual energy x-ray absorptiometry; CT = computerized tomography; FRAX® = fracture risk assessment tool; CTX = beta-C-terminal telopeptide; P1NP = 1-Nitropyrene; BBS = Berg balance scale; TAT= Tinetti Assessment Tool; DGI = dynamic gait index; BESTest = balance evaluation systems test; ODI= Oswestry Disability Index; LEFS = lower extremity functional scale; QuickDASH = quick disabilities of arm, shoulder, and hand questionnaire; MMT = manual muscle test; ECOS-16 = assessment of quality of life in osteoporosis questionnaire; ROM = range of motion; MMT= manual muscle test; ADLs = activities of daily living