MrOS Measurements

Category	Measurement	Baseline	Interim 1	Dental	Sleep 1	Visit 2	Visit 3	Interim 2	Sleep Visit 2	Visit 4	Visit 4 Repeat	Interim 3
Anthropometry	Abdominal adipose measurements (from QCT scans)	x										
Anthropometry	Height—Harpenden stadiometer	x		x	x	x	x		x	x	x	
Anthropometry	Neck, waist, hip circumferences				x		x		x			
Anthropometry	Sitting height			x		x						
Anthropometry	Weight—balance beam scale (digital scale in PO)	x		x	x	x	x		x	x	x	
Anthropometry	Skeletal muscle mass (from d3-creatine dilution method)									x		
Aortic calcification	Abdominal aortic calcification (lateral radiographs of lumbar spine)	x										
Blood Pressure	Pulse	x					x		x	x		
Blood Pressure	Resting blood pressure				x		x		x	x		
Blood Pressure	Ankle Arm blood pressure	x					x					
Caffeine	Caffeine Intake				x	x	x		x			
Cognitive Function	Digit Vigilance				x				x			
Cognitive Function	Self-reported memory change											x
Cognitive Function	Teng Modified Mini-Mental State Exam 3MS 0-100 pt)	x			x	x	x		x	x		
Cognitive Function	Trails B	x			x	x	x		x	x		
Dental	Dental SAQ			x		x						
Dental	Mouth X-ray			x		x						
Dental	Periodontal Exam			x		x						
Dental	Probing and Attachment Levels			x		x						
Dental	Oral BMD			x		x						
Depression	Geriatric Depression Scale				x	x	x	x	x	x		
Diet	Block FFQ	x								x		
Diet	Diet history	x										
DISH	Diffuse idiopathic skeletal hyperostosis assessment	x				x						
DXA	Hip Measures	x		x	x	x	x		#	x	x	
DXA	Spine Measures	x		x		x	x		#			
DXA	Whole body Measures	x		x	x	x	x		#	x	x**	
ECG	ECG				x				x			
Fatigue	Revised Piper Fatigue Scale								x			
Fatigue	Pittsburgh Fatigability Scale									x		
Finite Element Analysis	DXA-based hip FEA (case cohort)	x										
Finite Element Analysis	QCT-based hip FEA (case cohort)	x										
Finite Element Analysis	QCT-based spine FEA (case cohort)	x										
Fracture	Quantative Morphometry	x				x						
Fracture	Semi-quantative assessment	x				x						
Fracture	WHO FRAX 10-yr fracture probabilities	x										
Fracture	FORE-FRC 10-yr fracture probabilities	x										

Visit collected

Category	Measurement	Baseline	Interim 1	Dental	Sleep 1	Visit 2	Visit 3	Interim 2	Sleep Visit 2	Visit 4	Visit 4 Repeat	Interim 3
General Information	Ancestry					x						
General Information	Education level	x										
General Information	Family questions	x	x									
General Information	Living arrangement	x	x			x	x	x	x	x		x
General Information	Living arrangement- type of residence											
General Information	Marital status	x	x			x	x	x	x	x		x
General Information	Occupation	x										
General Information	Race	x										
General Information	Social and economic status	x					x					
Hand Exam	Hand exam (OA) + hand pain					x						
Hip Exam	Range of Motion					x						
Hip OA	Femoral Acetabular Impingement (FAI)					x						
Hip OA	Minimal Joint Space					x						
Hip OA	Joint space narrowing					x						
Hip OA	Osteophytes					x						
Hip OA	Sclerosis, Cysts, Defomity, Buttress					x						
Hip OA	Pagent's Disease					x						
HRpQCT Measures	Cross sectional moment of interia									x	x	
HRpQCT Measures	Finite element derived failure load									x	x	
HRpQCT Measures	Cortical porosity									x	x	
HRpQCT Measures	Trabecular density									x	x	
Images	DXA (Hip)	x				x	x		x	x	x	
Images	DXA (Spine)	x				x	x		x			
Images	DXA (Whole body)	x				x	x		x	x	x**	
Images	HRpQCT (radius)									x	x	
Images	HRpQCT (tibia)									x	x	
Images	HRpQCT (proximal calf)									x	x	
Images	QCT (Hip)	x					x					
Images	QCT (Spine)	x					x					
Images	X-ray (Hip)					x						
Images	X-ray (Thoracic and lumbar spine)	x				x						
Kyphosis	Block Measurements						x					
Kyphosis	Cobb Angle	x				x						
Lifestyle	Life Space						x	x		x		
Lifestyle	Social Networks		x			x	x			x		
Lifestyle	Stressful Life Events		x			x	x					
Lifestyle/QOL	SF-12	x	x		x	x	x	x	x	x		x
Lifestyle/QOL	SOF Functional Status (IADL)	x			x	x	x	x	x	x		x
Lifestyle/QOL	EQ5D		x					x	x	x		
Lung Function	Respiratory Symptoms Questionnaire									x		
Lung Function	Spirometry									x		
Medical History	Back and joint health	x				x	x			x		

MrOS Measurements

Category	Measurement	Baseline	Interim 1	Dental	Sleep 1	Visit 2	Visit 3	Interim 2	Sleep Visit 2	Visit 4	Visit 4 Repeat	Interim 3
					Visit collected							
Medical History	Extended CVD self-reported medical conditions				x				x			
Medical History	General self-reported medical conditions	x			x	x	x	x	x	x		
Medical History	General pain									x		
Medical History	Hip pain					x				x		
Medical History	History of falls	x	x		x	x	x	x	x	x		
Medical History	History of fractures	x					x					
Medical History	Hospitalizations											x
Medical History	Intention to lose weight		x			x	x	x	x	x		
Medical History	Limited activity days	x	x			x	x	x		x	x	x
Medical History	Rose questionnaire CVD				x				x			
Medical History	Sensory Questions (hearing, smell, touch)											x
Medical History	Sexual health					x	x					
Medical History	Sexual health- erectile dysfunction single question					x	x	x				
Medications	Medication Inventory	x	x		x	x	x	x	x	x	x***	
Moods/Feelings	Goldberg Anxiety Scale				x				x			
Personality	Personality Questionnaire									x		
Physical Activity	Accelerometry (Activity Monitor)						x			x		
Physical Activity	General questions	x					x			x		x
Physical Activity	PASE	x			x	x	x	x	x	x	x	x
Physical Performance	6m walk	x		x	x	x	x		x	x	x	
Physical Performance	400 m walk									x		
Physical Performance	Instrumented balance and Gait (ISAW)									x**		
Physical Performance	Chair Stands	x		x	x	x	x		x	x	x	
Physical Performance	Force Plate									x		
Physical Performance	Grip Strength	x		x	x	x	x		x	x	x	
Physical Performance	Narrow Walk	x		x	x	x	x		x			
Physical Performance	Nottingham (leg power)	x		x		x	x		x*			
Physical Performance	SPPB Balance Test									x		
Prostate Health	AUA Symptom Questionnaire	x	x			x	x					
Prostate Health	General questions		x			x	x					
QCT	Spine, hip analysis	x					x					
QCT	Statistical shape and density modeling (case cohort)	x										
Sleep	Actigraphy				x				x			
Sleep	Arrhythmia data from PSG				x							
Sleep	EEG power spectral data from PSG				x							
Sleep	Epworth sleepiness scale				x	x			x			
Sleep	Functional Outcomes of Sleep				x							
Sleep	Insomnia severity index								x			
Sleep	Pittsburgh Sleep Quality Index				x			x	x	x		

MrOS Measurements

Visit collected

Category	Measurement	Baseline	Interim 1	Dental	Sleep 1	Visit 2	Visit 3	Interim 2	Sleep Visit 2	Visit 4	Visit 4 Repeat	Interim 3
Sleep	Light data (LUX)- from actigraphy								x			
Sleep	Polysomnography				x				x			
Sleep	Psg morning survey				x				x			
Sleep	Respiratory-releated limb movement from PSG								x			
Sleep	Restless legs syndrome rating scale								x			
Sleep	Sleep Disorders		x		x				x			
Sleep	Sleep habits		x		x				x			
Specimen Collection	Blood blotter	x		x	x							
Specimen Collection	Finger and toe nails	x										
Specimen Collection	Serum (V4R stored locally)	x		x	x		x			x	x	x	
Specimen Collection	Plasma									x		
Specimen Collection	Urine- 1st morning void				x					x		
Specimen Collection	Urine- 24 hour				x**							
Specimen Collection	Urine- spot collection	x		x			x			x		
Specimen Collection	Whole blood	x		x			x			x		
Specimen Collection	Stool									x		
Spondylolisthesis	Spondylolisthesis from spine radiographs	x				x						
Tobacco & Alcohol Use	CAGE	x										
Tobacco & Alcohol Use	Current: frequency & quantity	x	x	x	x	x	x	x	x	x		
Trochanteric Soft Tissue	Trochanteric soft tissue from DXA (case cohort)	x										
Ultrasound	Hologic Sahara	x				x						
Vision	Functional Vision	x										
Vision	Self-reported visual function					x	x			x		x
Biochem Measures	Adiponectin (serum, V3 is subset)				x		x					
Biochem Measures	Albumin (serum)	x										
Biochem Measures	Albumin (micro) (urine, case-cohort)	x										
Biochem Measures	Albumin (urine)				x							
Biochem Measures	Alkaline phosphatase (serum)	x										
Biochem Measures	alpha-CTX (urine, case-cohort)	x										
Biochem Measures	beta-CTX (urine, case-cohort)	x										
Biochem Measures	Calcium (serum)	x										
Biochem Measures	Calcium (urine, case-cohort)	x			x							
Biochem Measures	Chloride (serum)	x										
Biochem Measures	Chloride (urine, case-cohort)	x			x							
Biochem Measures	Cholesterol (serum)	x										
Biochem Measures	Complete blood count						x					

		Visit collected										
Category	**Measurement**	**Baseline**	**Interim 1**	**Dental**	**Sleep 1**	**Visit 2**	**Visit 3**	**Interim 2**	**Sleep Visit 2**	**Visit 4**	**Visit 4 Repeat**	**Interim 3**
Biochem Measures	C-reactive protein (serum, baseline is case-cohort, V3 is subset)	x			x		x					
Biochem Measures	Creatinine (serum, V3 is subset)	x		x	x		x					
Biochem Measures	Creatinine (urine, V1 is case cohort)	x			x							
Biochem Measures	CTX (serum, case-cohort)	x										
Biochem Measures	Cystatin-C (serum, V1 is case-cohort, V3 is subset)	x		x	x		x					
Biochem Measures	Cytomegalovirus seropositivity, optical density (serum, case-cohort)	x										
Biochem Measures	eGFR equations (V3 is subset)	x		x	x		x					
Biochem Measures	Estradiol by Mass Spec (serum, case-cohort)	x										
Biochem Measures	Estradiol by RIA (serum, stratified random cohort)	x		x								
Biochem Measures	Estrone (serum, case-cohort)	x										
Biochem Measures	Ferritin (serum)						x					
Biochem Measures	FGF23 (serum, case-cohort)	x										
Biochem Measures	Follicle Stimulating Hormone (FSH) (serum, case-cohort)	x										
Biochem Measures	Free Thyroxine (FT4) (serum, case-cohort)	x										
Biochem Measures	Glucose (serum, V3 is subset)	x			x		x					
Biochem Measures	Hepcidin (serum)						x					
Biochem Measures	High density lipoprotein (serum)	x										
Biochem Measures	is subset)				x		x					
Biochem Measures	IL-1β (Interleukin-1beta) (serum, V3 is subset)				x		x					
Biochem Measures	IL-10 (Interleukin-10, serum, case-cohort)	x										
Biochem Measures	IL-6 (Interleukin-6) (serum, baseline is case-cohort, V3 is subset)	x			x		x					
Biochem Measures	Insulin (serum, V3 is subset)	x			x		x					
Biochem Measures	Irisin (serum)	x										
Biochem Measures	Iron (serum)						x					
Biochem Measures	Leptin (serum, V3 is subset)				x		x					
Biochem Measures	Luteinizing Hormone (LH) (serum, case-cohort)	x										
Biochem Measures	Low density lipoprotein (serum)	x										
Biochem Measures	Magnesium (urine, case-cohort)	x			x							
Biochem Measures	Melatonin (urine)				x							
Biochem Measures	Osteocalcin (serum)	x										
Biochem Measures	Oxidized LDL (serum)				x							
Biochem Measures	Phosphate (serum)	x										
Biochem Measures	Phosphatase (urine, case-cohort)	x			x							
Biochem Measures	Potassium (serum)	x										

		Visit collected										
Category	**Measurement**	**Baseline**	**Interim 1**	**Dental**	**Sleep 1**	**Visit 2**	**Visit 3**	**Interim 2**	**Sleep Visit 2**	**Visit 4**	**Visit 4 Repeat**	**Interim 3**
Biochem Measures	Potassium (urine, case-cohort)	x			x							
Biochem Measures	P1NP (serum, case-cohort)	x										
Biochem Measures	PTH, total intact (serum, baseline is case cohort)	x		x								
Biochem Measures	PTH, whole (serum, baseline is case cohort)	x		x								
Biochem Measures	SHBG (serum, case cohort)	x										
Biochem Measures	SHBG (serum, stratified random cohort)	x		x								
Biochem Measures	Sodium (serum)	x										
Biochem Measures	Sodium (urine, case cohort)	x			x							
Biochem Measures	Testosterone by Mass Spec (serum, case-cohort)	x										
Biochem Measures	Testosterone by RIA (serum, stratified random cohort)	x										
Biochem Measures	Thyroid Stimulation Hormone (TSH) (serum, case-cohort)	x										
Biochem Measures	TNF-a (tumor necrosis factor-alpha) (serum, baseline is case-cohort, V3 is subset)	x			x		x					
Biochem Measures	TNF-asRII (tumor necrosis factor-alpha soluble receptor II) (serum, V3 is subset)				x		x					
Biochem Measures	TRACPb (serum, case-cohort)	x										
Biochem Measures	Transferrin (serum)						x					
Biochem Measures	Triglycerides (serum)	x										
Biochem Measures	Uric Acid (serum, case-cohort)	x										
Biochem Measures	Vitamin D2 1,25(OH)2 (serum, case-cohort)	x										
Biochem Measures	Vitamin D3 1,25(OH)2 (serum, case-cohort)	x										
Biochem Measures	Vitamin D binding protein (serum, case-cohort)	x										
Biochem Measures	Vitamin D2 25(OH) (serum, V1 is case-cohort)	x		x	x					x		
Biochem Measures	Vitamin D3 25(OH) (serum, V1 is case-cohort)	x		x	x					x		

MrOS Measurements

Visit collected

Category	Measurement	Baseline	Interim 1	Dental	Sleep 1	Visit 2	Visit 3	Interim 2	Sleep Visit 2	Visit 4	Visit 4 Repeat	Interim 3
MrOS Visits	**Time Range**	**N**	**year**$^\wedge$									
Baseline	March 2000 to April 2002	5994	0									
Interim Questionnaire	July 2002 to March 2004	5742	2									
Dental	September 2002 to May 2003	1353	2.5									
Sleep	December 2003 to March 2005	3135	3.5									
Visit 2	March 2005 to May 2006	5229	5									
Dental Visit 2	March 2005 to April 2006	1224	5									
Visit 3	March 2007 to March 2009	4682	7									
Interim Questionnaire 2	March 2009 to February 2011	4100	9									
Sleep Visit 2	November 2009 to March 2012	1055	9.5									
Visit 4	May 2014 to May 2016	2424	14									
Visit 4 Repeat	March 2016 to July 2016	278	16									
Interim Visit 3	April 2017 to December 2017	2083	17									

* Optional, not all sites completed it.

** Portland Site Only

DXA scans were obtained at Sleep Visit 2, but not centrally processed

*** Visit 4 Repeat MIF is not recorded in the database yet.

^ year of follow-up rounded to the nearest half-year

updated 7/28/17