

How to Read the MOST Table of Measures

The Multicenter Osteoarthritis Study (MOST) is a long-running longitudinal cohort study with data collected over ~20+ years across multiple funding cycles.

Because the study evolved over time:

- Measures were added, refined, or retired
- New participant cohorts were enrolled
- Not all data were collected at every visit

This table summarizes what data are available and when, in a simplified format for pilot grant investigators.

Understanding Time in MOST

Time is shown as years since original enrollment, not calendar dates.

These groupings align across MOST1–MOST4 to help investigators conceptualize longitudinal analyses.

Telephone vs Clinic Visits

Data collection occurred through:

- Telephone interviews (TI)
- Clinic visits (CV)
- Missed clinic visit (MCV) collected via telephone

The table indicates how data were collected at each timepoint. The shading in the columns indicates a telephone interview.

Participant Cohorts (“Waves”)

MOST includes multiple cohorts:

- Wave 1: Original MOST participants (Recruited at Y0)
- Wave 2: Added in MOST3 (Recruited at Y12)
- Wave 3: Added in MOST4 (Recruited at Y20)

Not all waves contribute data at all timepoints.

Table 1a. Questionnaires for Baseline to Year 7 (Wave 1 Cohort)

Questionnaires	Screening	Baseline (Y0)	Time From MOST Grant Cycle 1			
			30mo	Y5 (60mo)	Y6 (T1) (72mo)	Y7 (84mo)
Screening / Demographics						
- Age and gender	X ⁴					
- Ethnicity, racial background, level of education		X ⁵				
- Marital status ^a and live alone or with others ^b		X ^{a,b,5}		X ^{b,5}		X ^{a,b,5}
- Employment, current and past		X ⁵	X ⁵	X ⁵		X ⁵
- Household: Ability to pay monthly bills				X ⁵		X ⁵
- Screening exclusion: Inflammatory arthritis	X ⁴					
Knee Symptoms						
- Knee symptoms, past 12 months and past 30 days	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
- First knee symptoms, how many years ago						X ⁴
- Knee pain visual 0-100 rating scale, past 30 days		X ⁵	X ⁴	X ⁴		X ⁴
- WOMAC knee pain, past 30 days	X ⁴	X ⁵	X ⁵	X ⁵		X ⁵
- WOMAC knee stiffness, past 30 days	X ⁴	X ⁵	X ⁵	X ⁵		X ⁵
- Initial pain at clinic visit				X ⁴		
- Constant and intermittent pain (ICOAP), past 7 days				X ⁴		X ⁴
- Knee pain map				X ⁴		X ⁴
- Knee buckling		X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
Knee-related function and QOL						
- WOMAC physical function - past 7 days		X ⁵	X ⁵	X ⁵		X ⁵
- KOOS function/sports/recreation, past 30 days		X ⁵	X ⁵	X ⁵		X ⁵
Other Joint Symptoms						
- Hip symptoms, past 30 days		X ⁵	X ⁴	X ⁴	X ⁴	X ⁴
- WOMAC hip symptoms, past 30 days		X ⁵	X ⁵			
- Hip surgery (THR)		X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
Joint pain (homunculus diagrams), past 30 days						
- Body: shoulders, elbows, hips, wrists, hands, knees, ankles, neck		X ⁵	X ⁵	X ⁵		X ⁵
- Feet and/or hands		X ⁵		X ⁵		X ⁵
- Back pain and function, past 30 days		X ⁵	X ⁵	X ⁵		X ⁵
General Health						
- Arthritis diagnosis		X ⁵	X ⁵	X ⁵	X ⁴	X ⁵
- SF-12		X ⁵	X ⁵	X ⁵		X ⁵
- CES-D (depressive symptoms)		X ⁵	X ⁵	X ⁵		X ⁵
- Cognition (Fillit ^a or Callahan 6-Item Screener ^b)				X ^{a,4}		X ^{b,4}
- Comorbidity Index		X ⁵	X ⁵	X ⁵		X ⁵
- Pittsburg Sleep Quality Index and fatigue, past 7 days				X ⁵		X ⁵
- Medical care and insurance						X ⁵

Functional Status and Disability						
- Mobility: Assistive technology / devices (HAQ)				X ⁵		X ⁵
- Disability: Walk by self without help / walker						
- Limitation of activity due to pain, past 30 days		X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
- Late-life FDI: Disability Component		X ⁵	X ⁵	X ⁵		X ⁵
- Physical Activity Scale for the Elderly (PASE), past 7 days		X ⁴				X ^{1,4}
- PF-10 Scale of SF-36				X ⁵		X ⁵
- Stair flights climbed, past 7 days		X ⁴				X ^{1,4}
Medication						
- Medication inventory (Rx and/or non-Rx), past 30 days		X ⁴	X ⁴	X ^{4,7}		X ^{4,7}
- Vitamins E and C supplements		X ⁴	X ⁴			
- Vitamin D supplements				X ⁴		X ⁴
Selected medications, self-reported						
- Salicylates/NSAIDs/opioids, current use		X ⁵	X ⁵	X ⁵		X ⁵
- Bisphosphonates/estrogens, past 12 months		X ⁴	X ⁴	X ⁴		X ⁴
- Knee injections for arthritis, past 6 months		X ⁵	X ⁴	X ⁴		X ⁴
Health Behaviors and OA Risk Factors						
- Knee injury history		X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
- Knee surgery history (for TKR, see Misc. below)	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴	X ⁴
- Family history of arthritis		X ⁵				
- Height and weight history		X ⁵				
- Shoe heel height		X ⁴				
- Fracture history (after age 45)		X ⁵				
- Injury, fractures, falls, past 12 months or since last contact			X ⁵	X ⁵	X ⁴	X ⁵
- Falling (fear of)				X ⁵	X ⁴	X ⁵
- Activities-specific Balance Confidence Scale (ABC)				X ⁵		X ⁵
- Tobacco use history		X ⁵				
- Tobacco use, current						X ⁵
- Coping Strategies Questionnaire (CSQ) - Pain Catastrophizing subscale elements				X ^{5,6}		X ^{5,6}
- Accelerometer questionnaire (knee pain, sleep, and fatigue during 7-day collection)						X ¹
- Female history – pregnancy history, childbirth, hysterectomy			X ⁵			
Miscellaneous						
- Knee/hip replacement			X ⁸	X ⁸	X ⁸	X ⁸
- Knee/hip replacement pre-operative diagnosis			X ⁹	X ⁹	X ⁹	X ⁹
- Confirmation of death by public records			X	X	X	X

Table 1b. Clinic Visit Measures for Baseline to Year 7 (Wave 1 cohort)

Clinic Visit Measures	Screening	Baseline	Time From MOST Grant Cycle 1		
			30mo	Y5 (60mo)	Y7 (84mo)
Blood collection, fasting					
- Serum and EDTA plasma		X ¹¹	X ^{1,11}	X ¹¹	
- EDTA Supernatant		X ¹²			
- Buffy coat for DNA		X ¹³			
Urine collection					
- Second AM void		X ¹¹	X ¹¹	X ¹¹	
Height, standing		X		X	
Weight	X ⁴	X	X	X	X
Leg length		X			
Knee height		X			
Knee laxity		X			
Leg proprioception		X			
Knee flexion contracture		X			
Hand exam		X			
Pain sensitization (i.e. von Frey filaments, pressure algometer)				X	X
Peripheral neuropathy				X	
Vibration perception threshold				X	
Knee range of motion					X
Knee joint examinations					
- Trochanteric bursitis		X ¹	X ¹		
- Iliotibial band friction syndrome		X ¹	X ¹		
- Anserine bursa tenderness		X ¹	X ¹		
- Medial knee fat pad and other tenderpoints		X ¹	X ¹		
- Hip internal rotation (pain and range of motion)		X ¹	X ¹		
- Tenderpoint exams		X ¹	X ¹		
Blood pressure		X	X	X	X
Performance Measures					
- 20-meter timed walk		X	X	X	X
- Chair stands, timed		X	X	X	X
- Balance exams (rapid step ups, maximum step length)				X	
- Isokinetic upper leg concentric strength		X ¹⁰		X ¹⁰	
- Surface EMG, muscle co-activation (during isokinetic strength)				X	
- Plantar Pressure				X	
- Gait assessment (GAITRite)				X	
- Accelerometer (7-day collection)				X ¹	X ¹

MRI					
- 1.0T MRI (Coronal, Sagittal, Axial)		X ¹⁰	X ¹⁰	X ¹⁰	X ¹⁰
- 1.0T MRI 3-Point Dixon sequence		X ^{1,10}		X ^{1,10}	
- 1.5T MRI (Laxity Ancillary Study)		X ¹	X ¹		
- 1.5T MRI (Gadolinium Ancillary Study)			X ¹		
X-ray					
- Knee (PA and lateral)		X ¹⁰	X ¹⁰	X ¹⁰	X ¹⁰
- Full-limb		X		X	
DXA Bone Density					
- Hip		X	X ¹		X
- Whole body		X	X ¹		X

Footnotes to Table 1:

- ¹ Subset of participants
- ² Subset of participants: 15-month potential cases*
- ³ Subset of participants: 15-month controls*
- ⁴ Interviewer-administered
- ⁵ Measured by self-administered questionnaire (SAQ)
- ⁶ Subset of questions
- ⁷ Rx medications only
- ⁸ Self-reported or physician adjudicated by x-ray or surgery records, if available
- ⁹ Pre-op diagnosis derived from surgery records, if available
- ¹⁰ Bilateral or unilateral
- ¹¹ MOST samples available through NIA Aging Research Biobank (<https://agingresearchbiobank.nia.nih.gov/>)
- ¹² EDTA Supernatant samples used for parent study or destroyed (limited shelf life)
- ¹³ DNA extracted from baseline buffy coat samples

*15-month time point not shown; data available for a limited subset only.

Table 2a. Questionnaires for Years 12-14 (Waves 1 +2 Cohorts)

Questionnaires	Screening	Y12 Baseline (144mo)	Time From MOST Grant Cycle 1		
			152mo (T1)	160mo (T1)	Y14 (168mo)
SCREENING / DEMOGRAPHICS					
- Age and gender	X ¹				
- Education		X ¹			
- Ethnicity, racial background	X ¹				
- Marital status and live alone or with others		X			X
- Current Employment		X			X
- Household: Ability to pay monthly bills		X			X
- Screen: Pregnancy and female history (menstrual history, childbirth, hysterectomy, menopause)	X ¹				
- Screen: Walk without a walker	X ¹				
- Screen: Inflammatory arthritis	X ¹				
- Screen: Cancer / health	X ¹				
- Screen: MRI and/or CT eligibility	X ¹	X ²			
KNEE SYMPTOMS					
- Knee symptoms, past 12 months and past 30 days	X ¹	X	X ⁴	X ⁴	X
- Knee pain visual 0-100 rating scale, past 30 days		X			X
- WOMAC knee pain, past 30 days		X	X ⁴	X ⁴	X
- WOMAC knee stiffness, past 30 days		X	X ⁴	X ⁴	X
- ICOAP (Constant and intermittent pain)		X	X ^{3,4}	X ^{3,4}	X
- Knee pain location		X			X
- Knee buckling		X	X ⁴	X ⁴	X
KNEE-RELATED FUNCTION AND QOL					
- WOMAC physical function - past 7 days		X	X ⁴	X ^{4,5}	X
- KOOS function/sports/recreation, past 30 days		X ¹			X ¹
OTHER JOINT SYMPTOMS					
- Hip symptoms, past 30 days		X			X
- Hip surgery		X	X ⁴	X ⁴	X
JOINT PAIN (HOMUNCULUS DIAGRAMS), PAST 30 DAYS					
- Body: shoulders, elbows, hips, wrists, hands, knees, ankles, neck		X			X
- Feet and/or hands		X			X
- Back pain and function, past 30 days		X			X
GENERAL HEALTH					
- Arthritis diagnosis		X			X
- SF-12 (health survey)		X		X ⁵	X
- CES-D (depressive symptoms)		X			X
- Modified Charlson Comorbidity Index		X			X
- Pittsburg Sleep Quality Index (PSQI) and fatigue		X ¹			X ¹
- 7-day sleep and fatigue		X			X
- Physical therapy		X			X
- Medical care and insurance		X			X
- Major hospitalizations		X	X ⁴	X ⁴	X
FUNCTIONAL STATUS AND DISABILITY					
- Helpful aids/devices (Stanford HAQ)		X ²			X ²
- Late-life FDI: Disability Component		X ²			X ²
- Pain DETECT		X ¹			X ¹
- PROMIS function (pain behavior and interference)		X			X

-Physical Activity Scale for the Elderly (PASE), past 7 days		X			
- PF-10 Scale of SF-36		X		X ⁵	X
- Life-Space Assessment		X ²			X ²
MEDICATION					
- Medication inventory (Rx), past 30 days		X			X
- Vitamin D supplements, calcium, magnesium, Selected medications, self-reported		X			X
- Joint pain medications		X			X
- Salicylates/NSAIDs/opioids, current use		X			X
- Bisphosphonates/estrogens, past 12 months		X			X
- Knee injections for arthritis, past 6 months		X			X
HEALTH BEHAVIORS AND OA RISK FACTORS					
- Knee injury history		X	X ⁴	X ⁴	X
- Knee surgery history (for TKR, see Misc. below)		X	X ⁴	X ⁴	X
- Family history of arthritis	X ¹				
- Weight history		X ¹			
- Fracture history (after age 45)		X			
- Fracture since last contact		X	X ⁴	X ⁴	X
- Falling (fear of)		X			X
- Tobacco use history		X ¹			
- Tobacco use, current		X			X
- Coping Strategies Questionnaire (CSQ) - Pain Catastrophizing subscale elements		X			X
- Accelerometer questionnaire (knee pain, sleep, and fatigue during 7-day collection)		X			
MISCELLANEOUS					
- Participant reliability assessment by interviewer	X ¹	X	X ⁴	X ⁴	X
Outcomes adjudication					
- Knee/hip replacement		X	X	X	X
- Knee/hip replacement pre-operative diagnosis		X	X	X	X
- Confirmation of death by public records		X	X	X	X

Table 2b. Clinic Visit Measures for Years 12-14 (Waves 1 +2 Cohorts)			
Clinic Visit Measures	Screening	Y12 Baseline (144mo)	Time From MOST Grant Cycle 1
			Y14 (168mo)
Blood collection, fasting			
- Serum and EDTA plasma		X ¹	
- Buffy coat for DNA		X ¹	
- Paxgene		X ¹	
Urine collection		X ¹	
Height, standing		X	
Shoe hardness		X	
Foot length		X	
Weight	X ¹	X ²	X
Hand photo		X	
Hip internal rotation (pain and range of motion)		X	
Blood pressure		X	X
Performance Measures of Function			
- 20-meter timed walk		X	X
- Chair stands, timed		X	X
- Timed Up and Go (TUG) Test		X ²	X ²
- 6 Minute Timed Walk (6MTW)		X	X
Biomechanical Measures			
- Quadriceps power and hip strength		X	
- Gait asymmetry, complexity OPAL		X	
- Force of heel strike		X	
- Objective physical activity (7-day accelerometer data w/ AX3)		X	
- Postural sway (Opal monitor)		X	
Quantitative Sensory Testing			
- Conditioned pain modulation		X	X
- Pressure pain threshold		X	X
- Temporal summation		X	X
- Peripheral neuropathy		X	X
Knee CT (chondrocalcinosis and local BMD)		X	
Knee MRI (1.5T - Extremity)		X	X
X-ray			
- Knee (PA and lateral)	X ¹	X ²	X
- Full-limb		X ¹	
Cognitive Assessment: MoCA (>65 yrs)		X ²	

Footnotes to Table 2:

¹ New Cohort only (wave 2)

² Existing Cohort only (wave 1)

³ Subset of questions

⁴ Interim TI collected in participants who had CV at 144M

⁵ Functional Outcome Interview collected in participants who had long version of MCVTI at Y12 (144M)

Table 3a. Questionnaires for Years 20-22 (Waves 1, 2, & 3 Cohorts)

Questionnaire And Interview Measures	Time From MOST Grant Cycle 1	
	Y20	Y22 (Pending)
Screening / Demographics		
- Age and gender, ethnicity, racial background (Wave 3 Only)	X	
- Household, Medical Care, and Marital Status	X	
- Education	X	
- Employment and Ability to pay monthly bills	X	
- Work limitations	X	
- Socioeconomic Status (SES)	X	
- Helpful Aids and Devices	X	
- Knee Replacement	X	X
- Inflammatory arthritis	X	
- MRI Eligibility	X	X
- Knee symptoms, past 12 months and past 30 days	X	X
- Brief pain inventory, past 7 days (questions worst, best, and avg.) 0-10	X	X
- ICOAP (Intermittent and Constant OA pain)	X	X
- Knee pain map	X	X
- Knee buckling	X	X
- WOMAC (Pain, Function, Stiffness), past 30 days	X	X
- KOOS function/sports/recreation, past 30 days	X	X
- Pain DETECT	X	
Joint Pain Outside Knees		
- Body & Joint Homunculus	X	X
- Back pain and function, past 30 days	X	X
Physical Activity		
- Physical Activity Scale for the Elderly (PASE), past 7 days	X	X
General Health		
- Arthritis diagnosis	X	X
- Arthritis medications	X	X
- SF-12 (health survey)	X	X
- CES-D (depressive symptoms)	X	X
- Modified Charlson Comorbidity Index	X	X
- Pittsburg Sleep Quality Index (PSQI) and fatigue	X	X
- Physical therapy, medical care, insurance	X	X
- Major hospitalizations	X	X
- Cognitive Assessment: MoCA-5 and DSST	X	X
- Activities of Daily Living (ADLs)	X	X
- Late Life Disability Index	X	X
- Life-Space Assessment	X	X
- Medication Inventory including knee injections	X	X
Health Behaviors And Oa Risk Factors		
- Knee injury history, Knee surgery history	X	X
- Family history of arthritis	X	X
- Weight history	X	
- Unintentional Weight Loss (Frailty)	X	
- Fracture history and fracture since last contact	X	X
- Fear of falling	X	X

- Falls	X	X
- Tobacco use, history and current	X	
- Cannabis Use	X	
- Alcohol Beverages past 12 months	X	
- Coping Strategies Questionnaire, Pain Catastrophizing	X	X
- Multisensory Amplification Scale	X	X
- Accelerometer questionnaire (knee pain, sleep, and fatigue during 7-day collection)	X	X
- Fear avoidance & exercise beliefs (Modified for OA)	X	X
- Outcome expectations for exercise scale – 2 (OEE-2)	X	X
- Perceived Discrimination	X	
- Chronic Stress	X	X
- Loneliness and Social Networks	X	X

Table 3b. Clinic Visit Measures for Years 20-22 (Waves 1, 2, & 3 Cohorts)

Clinic Visit Measures	Time From MOST Grant Cycle 1	
	Y20	Y22 (Pending)
Biospecimen		
- Serum and EDTA plasma, Buffy coat for DNA (blood)	X	
- Synovial fluid	X	
Vitals		
- Weight	X	
- Height	X	
- Blood pressure	X	X
Performance Measurements of Function		
- 20-meter timed walk	X	X
- (StEPP) Stair Climbing for movement-evoked pain	X	X
Biomechanical Measures		
- Quadriceps Strength	X	X
- Objective physical activity (7-day accelerometer data w/ AX6)	X	X
- Quantitative Sensory Testing	X	X
- Conditioned Pain modulation	X	X
- Pressure pain threshold	X	X
- Temporal summation	X	X
- Peripheral Neuropathy	X	X
- Exercise-induced Hypoalgesia Protocol	X	X
- Heart Rate Variability (ECG)	X	
Imaging		
- Knee MRI (1.5T – Extremity)	X	X
- Knee Dual Energy CT (DECT)	X (subset)	
- Weight-bearing CT (bilateral knee)	X	X
- Hand X-ray (bilateral)	X	
- Knee X-ray (bilateral, PA, and lateral views)	X	X
- Ultrasonography: synovial fluid acquisition	X	

Selected interview measures were collected every ~8 months between clinic visits (email, phone, or mail).