MULTICENTER OSTEOARTHRITIS STUDY
KNEE MRI INVENTORY & IMAGES
MARCH 2023

Datasets

Dataset: MOSTV0123579MRIinv.sas
Observations: 4143 (1 record per study participant)
Variable Guide: VariableGuide_V0123579MRiInv.pdf
Distributions: Distributions_V0123579MRIinv.pdf

Formats: FORMATS.SAS7BDAT (contains all the formats used for the dataset)

Data is in SAS format (.sas7bdat), comma-separated (.csv) and tab-separated ASCII (.txt) text files, and there is also a .csv file (contentsMR.csv) that lists the folders that images are stored in and the types of images in that folder

Variables

The dataset includes 10 variables for each study visit indicating the availability of images for the indicated sequences: Axial, Saqittal, Coronal FSE, Coronal STIR, and 3-point Dixon. The variable prefix 'Vx' (e.g., V0, V1, V2, etc) indicates the study visit.

Variable	Description	Variable	Description
VxR_Ax	Right knee Axial FSE	VxL_Ax	Left knee Axial FSE
VxR_Sag	Right knee Sagittal FSE	VxL_Sag	Left knee Sagittal FSE
VxR_Cor	Right knee Coronal FSE	VxL_Cor	Left knee Coronal FSE
VxR_STIR	Right knee Coronal STIR	VxL_STIR	Left knee Coronal STIR
VxR_Dix	Right knee 3-Point Dixon	VxL_Dix	Left knee 3-Point Dixon

The values for each of these variables take the following meanings:

- 0 = None (the participant has no images available for the indicated sequence)
- 1 = The participant has 1 set of image sequences available for the indicated sequence
- 2 = The participant has 2 set of image sequences available for the indicated sequence
- 3 = The participant has 3 set of image sequences available for the indicated sequence
- 4 = The participant has 4 set of image sequences available for the indicated sequence

Visit numbers are as follows:

- V0 (Baseline visit)
- V1 (15-month followup visit) - only in a small subset of participants
- V2 (30-month followup visit)
- V3 (60-month followup visit)
- V5 (84-month followup visit)
- V7 (144-month followup visit)
- V9 (168-month followup visit)

Participants in the “Original Cohort” (IDs M0001 thru M3026) can have images at any visits. Participants in the “New Cohort” (IDs M3031 thru M7232 can only have images at V7 and V9.

Images

The images are provided in DICOM format, with one folder per participant and then separate subfolders (L and R) for each knee. There are then separate subfolders for each visit at which the knee was scanned.

The images in the “MOST Knee MRI” folder will contain a subfolder for each participant, named after their MOSTID and 4-letter ACROSTIC. Left and Right knee images are then stored under that in separate “L” or “R” subfolders; followed by subfolders named after the visit, the (fictitious) date of the image, the DICOM Study, and the DICOM Series. The DICOM Series name also indicates the type of MRI pulse sequence acquired.

For example, this folder:

```
M0499^YRHY^^\R\V0\20050101\ST104992\SER3_SAG_PD_FAT_SAT\
```

contains the sagittal PD fat suppressed FSE images for the right knee of participant M0499,YRHY from the baseline (V0) visit.

More information about the details of the MRI pulse sequences is given in the MOST MRI Operations Manuals. For V0 thru V5, a 1.0T extremity scanner was used. After V5, a 1.5T extremity scanner was used with better quality pulse sequences. Both of these Operations manuals are available at:
https://agingresearchbiobank.nia.nih.gov/studies/most/documents/?f=Manual_of_Procedures

The year of the fictitious dates also indicate which visit the images are from.

- V0 (Baseline visit) year = 2005
- V1 (15-month followup visit) year = 2006
- V2 (30-month followup visit) year = 2007
- V3 (60-month followup visit) year = 2008
- V5 (84-month followup visit) year = 2009
- V7 (144-month followup visit) year = 2010
- V9 (168-month followup visit) year = 2011

Images are usually dated January 1st, but when a participant has been brought back for a repeat scan, those are given later dates further into the year indicating how many months elapsed between the initial scan and the repeat scan. The DICOM images are stored using lossless JPEG compression (TransferSyntaxUID 1.2.840.10008.1.2.4.70 JPEGLossless, Non-hierarchical-1stOrderPrediction) and DICOM tags such as the Study Description and Series Description indicate the knee, visit and pulse sequence type. The PatientID tag contains the MOSTID and the PatientName tag contains the 4-letter Acrostic.

The folder structure for a single participant’s images (M0499,YRHY) is shown below:

```
M0499_YRHY
+---L
|   +---V0
|   |   \---20050101
|   |       \---ST104990
|   |           +---SER1_LOCALIZER_
|   |           +---SER2_AXIAL_PD_FAT_SAT
|   |           +---SER3_SAG_PD_FAT_SAT
|   |           \---SER4_HR_COR_STIR_
|   +---V2
```

```
|   |   \---20070101
|   |       \---ST304991
|   |           +---SER1_LOCALIZER_
|   |           +---SER2_AXIAL_PD_FAT_SAT
|   |           +---SER3_SAG_PD_FAT_SAT
|   |           +---SER4_HR_COR_STIR_
|   |           \---SER5_HR_COR_STIR_
|   +---V3
|   |   \---20080101
|   |       \---ST404990
|   |           +---SER1_
|   |           +---SER2_AXIAL_PD_FAT_SAT
|   |           +---SER3_SAG_PD_FAT_SAT
|   |           \---SER4_HR_COR_STIR_
|   \---V5
|       \---20090101
|           \---ST5000501
|               +---SER1_LOCALIZER
|               +---SER2_SAG_PD_FAT_SAT
|               +---SER3_COR_HR_COR_STIR
|               +---SER4_COR_HR_COR_STIR
|               \---SER5_COR_HR_COR_STIR
\---R
    +---V0
    |   \---20050101
    |       \---ST104992
    |           +---SER1_LOCALIZER_
    |           +---SER2_AXIAL_PD_FAT_SAT
    |           +---SER3_SAG_PD_FAT_SAT
    |           +---SER4_HR_COR_STIR_
    |           \---SER5_3_POINT_DIXON_
    +---V2
    |   \---20070101
    |       \---ST304993
    |           +---SER1_LOCALIZER_
    |           +---SER2_AXIAL_PD_FAT_SAT
    |           +---SER3_SAG_PD_FAT_SAT
    |           +---SER4_HR_COR_STIR_
    |           \---SER5_3_POINT_DIXON_
    +---V3
    |   \---20080101
    |       \---ST404991
    |           +---SER1_
    |           +---SER2_AXIAL_PD_FAT_SAT
    |           +---SER3_SAG_PD_FAT_SAT
    |           +---SER4_HR_COR_STIR_
    |           \---SER5_HR_COR_STIR_
    |---V5
    |   \---20090101
    |       \---ST5000500
    |           +---SER1_LOCALIZER
    |           +---SER2_SAG_PD_FAT_SAT
    |           +---SER3_COR_HR_COR_STIR
    |           +---SER4_COR_HR_COR_STIR
    |           \---SER5_SAG_PD_FAT_SAT
  \---V7
      \---2010011
          \---ST804990
              +---SER1001_GE2D_LOC
              +---SER1002_GE2D_LOC
              +---SER1003_GE2D_LOC
              +---SER2001_SAG_PD_FAT_SAT
              +---SER3001_HR_COR_STIR
              +---SER4001_AXIAL_PD_FAT_SAT
              +---SER5001_Axial_FSEfw_1.o_T_version
              +---SER5001_Fat_Axial_FSEfw_1.o_T_version
              \---SER5001_Water_Axial_FSEfw_1.o_T_version
```

A text file (contentsMR.csv) is also provided listing each folder available and information about the type of images stored in the folder.