

## Organ-based normative values in healthy subjects derived from whole-body [18F]FDG-PET/CT

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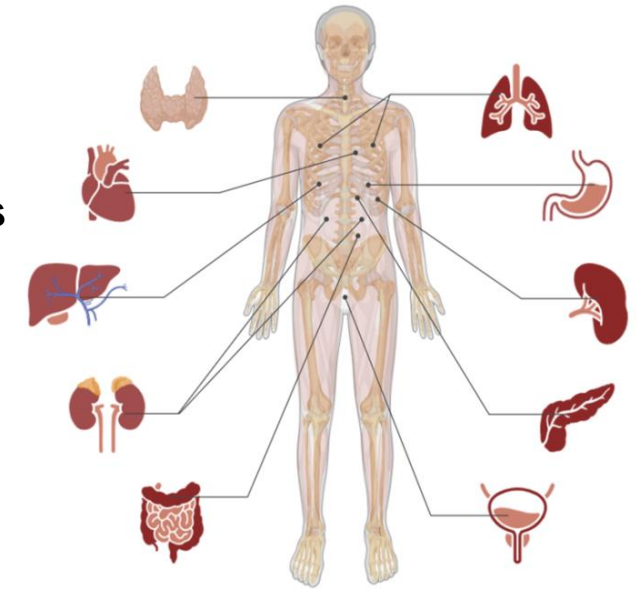
**Aim:** Establishing organ-specific normative uptake values and their variability using whole-body [18F]FDG-PET/CT in a cohort of healthy subjects.

**Data:** **Test and retest** (5 weeks apart) static [18F]FDG PET/CT scans of **48 healthy subjects** (25 females, 23 males;  $38 \pm 14$  years) scanned at the **Medical University of Vienna**.



### Methods:

- **27 VOIs** segmented using **TotalSegmentator v2.8.0** and **MOOSE v3.0.13**.
- The **volume (mL)**, **SUVmean** and **HUmean** in each VOI were calculated.
- Differences between test and retest values for males and females separately were evaluated using **relative %-differences**, **t-tests** and **Wilcoxon signed-rank tests**.



## Results:

### • Reproducibility (Test-Retest):

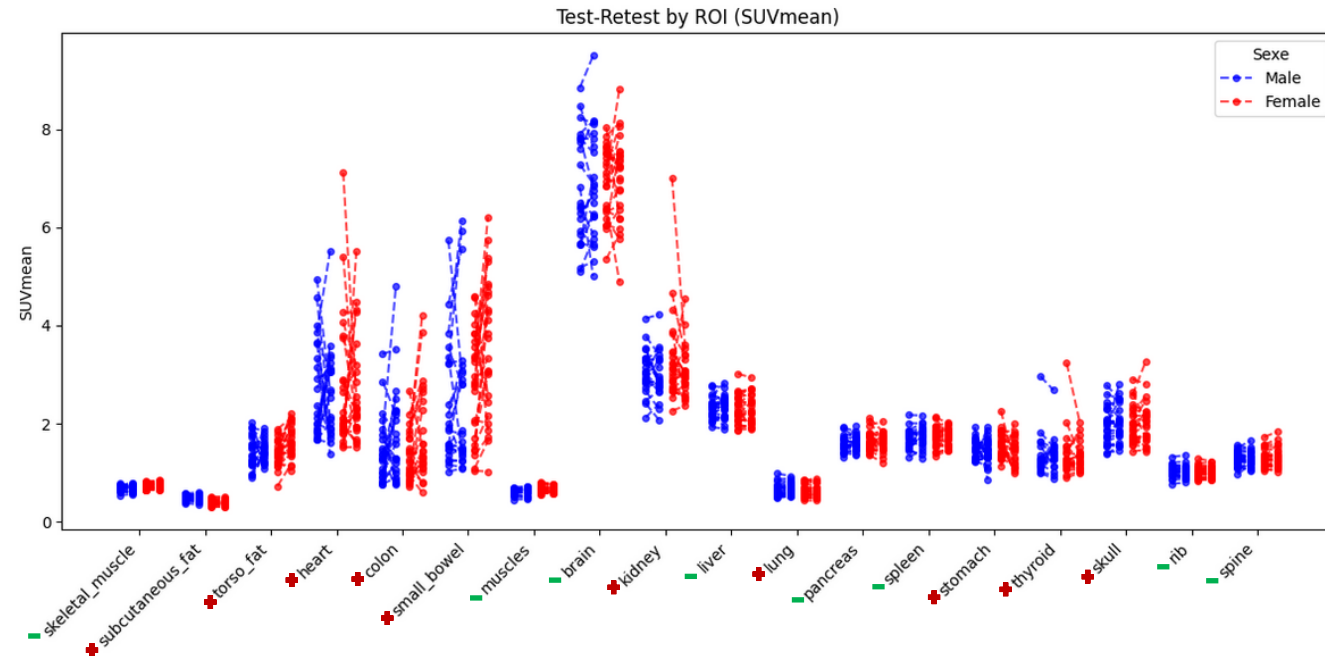
- No significant differences between test and retest, regardless of segmentation algorithm.
- SUVmean was robust across methods, except for:
  - small bowel
  - tissues → segmentation tool bias

### • Inter-subject Variability in SUVmean:

- High variability (>15%): 15/27 VOIs including heart, kidneys, bladder, fat, skull, digestive organs
- Low variability (<15%): 12/27 VOIs including brain, liver, pancreas, spleen, muscles

### • Sex-based Differences:

- Volumes higher in men (BMI-related) → Significant differences in SUVmean for skeletal muscle ( $p=0.046$ ) and subcutaneous fat ( $p<10^{-4}$ ) with a low inter-subject variability.



## Conclusion:

- All organs demonstrated **reproducible measurements across test-retest**.
- SUVmean: Only **12 organs** showed consistently low variability across subjects and segmentation methods.