### Supplemental Table S1. Signal pattern in MRI images

<table>
<thead>
<tr>
<th>Area</th>
<th>Signal intensity pattern (T1WI/T2WI)</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low/Low</td>
<td>Intestinal wall (corresponding largely to the muscle layer of the wall but also including gas-containing stool)</td>
</tr>
<tr>
<td>2</td>
<td>Low/High</td>
<td>Water (corresponding to bowel fluid) or High/Low</td>
</tr>
</tbody>
</table>

WI, weighted image.
Supplemental Figure Legends

**Supplemental Figure S1.** Flow diagram for subject recruitment and propensity score matching. FDG, fluorodeoxyglucose; PET-MRI, positron emission tomography–magnetic resonance imaging; T2DM, type 2 diabetes mellitus.

**Supplemental Figure S2.** Methods for segmentation and generation of volumes of interest (VOIs) for quantitative analysis. The fat component including visceral fat was first segmented by thresholding the fat signal intensity on fat images of the Dixon sequence and was converted to a VOI (A). Nonfat T1-weighted (B) and T2-weighted (C) images were generated by copying and subtracting the VOI. Further segmented images and VOIs were generated according to the signal intensity of the greater psoas muscle as a thresholding value for both T2-weighted (D) and T1-weighted (E) images. Generated VOIs were finally copied to the PET images (F) in order to extract the defined areas on PET (G, corresponding to area 1 in this particular case). Fused images of segmented PET and the original MRI (H) were evaluated to determine the $SUV_{\text{max}}$ for each part of the digestive tract (I).

**Supplemental Figure S3.** $^{18}$F]FDG PET images for all subjects in the control (A) and metformin (B) groups.
Supplemental Figure S1.

Supplemental Fig. 1

- FDG PET/MRI undertaken (n=1246)
  - No T2DM (n=1002)
  - T2DM (n=244)
    - Metformin administered (n=50)
      - Insufficient medical information (n=1)
      - Repeated PET-MRI (n=5)
      - Metformin terminated (n=17)
    - Metformin continued (n=27)
    - Metformin not administered (n=194)
      - Matching BMI, age, HbA1c
        - Metformin group (n=24)
        - Control group (n=24)
Supplemental Figure S2.
Supplemental Figure S3A.
Supplemental Figure S3B.