

Digitally Reconstructed Radiography (DRR)

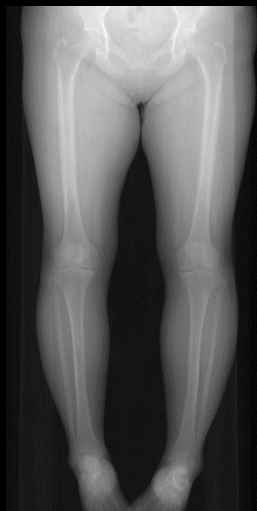
DL-based Segmentation Model

Multivariate Linear Regression Prediction Model

Lower Extremity CT

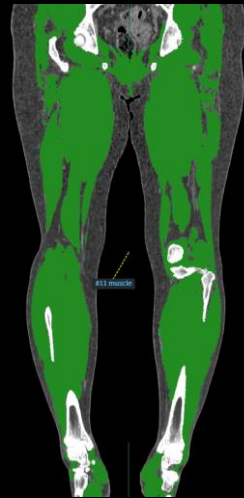


DRR

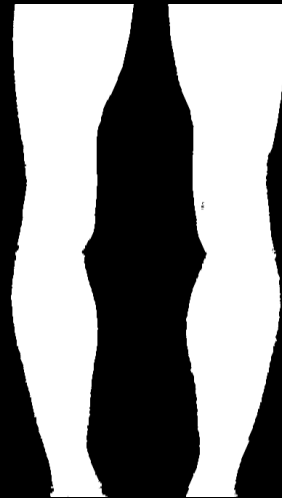


Raysum

3D mask for L/E muscles

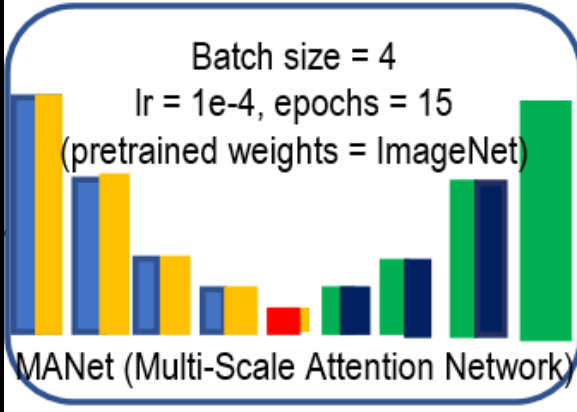


2D mask for L/E muscles

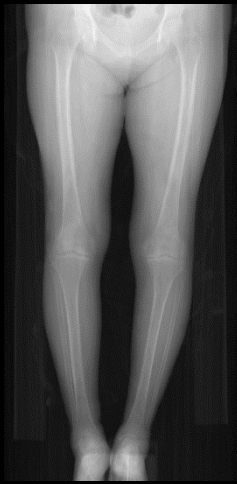


MIP

Ensemble Model (Unet++, MANet)



Input



Predicted muscle area



Inference

Muscle Area = 1561 cm²

Variable	Coefficient	SE	P-value
Area ²	0.002	0.0002	< 0.001
Age	7.1	5.8	0.225
Sex (baseline: female)	2025	305	< 0.001



Prediction model for 3D muscle volume

lm(formula = volume ~ l(area^2) + age + sex)

Intraclass coefficient = 0.90

