

# Estimation of medium wave speed model

1. Estimation wave speed in skin with autofocus (pixel size = wavelength in skin / 4)
2. Average wave speed in skin over 5 longitudinal and 5 transverse acquisitions, separately for each anatomical site (middle and proximal third tibia)
3. Estimation of  $V_{\text{axial}}$  in bone with headwave velocity with longitudinal acquisitions, with fine image reconstruction (pixel size = wavelength in skin / 12, for accurate segmentation of periosteum, use the estimated average wave speed in skin)
4. Average  $V_{\text{axial}}$  in bone over 5 longitudinal acquisitions, separately for each anatomical site (middle and proximal third tibia)
5. Fine image reconstruction up to periosteum for accurate segmentation of periosteum (pixel size = wavelength in skin / 12, use the estimated average wave speed in skin)
6. Estimation of  $V_{\text{radial}}$  in bone with autofocus with transverse acquisitions (pixel size = wavelength in skin / 4, use the estimated accurate segmentation of periosteum in input)
7. Average  $V_{\text{radial}}$  in bone over 5 transverse acquisitions, separately for each anatomical site (middle and proximal third tibia)
8. Estimation of  $\text{aniso\_shape\_coef}$  in bone with autofocus with longitudinal acquisitions (pixel size = wavelength in skin / 4, use the estimated accurate segmentation of periosteum in input, the estimated average values of  $V_{\text{axial}}$  and  $V_{\text{radial}}$ )
9. Average  $\text{aniso\_shape\_coef}$  in bone over 5 longitudinal acquisitions, separately for each anatomical site (middle and proximal third tibia)