**Supplementary material**

The first calibration curve was generated by plotting the prepared phantom sodium concentrations (from 15.4 mmol/L to 61.6 mmol/L) versus the original signal intensities values (Iorigphan) measured on sodium images. After we corrected the signal intensities of the phantoms (Icorrphan), we re-read from the curve new (calculated) phantom sodium concentrations (Table 1).

The second calibration curve was generated by plotting calculated phantom sodium concentrations versus corrected signal intensities and from this curve, we read the corrected signal (Icorrphan) that corresponds to the reference concentration [Na*ref*] of 25.0 mmol/L and this value was replaced in formula 3 (main document). In this formula, Icorrinvivo stands for corrected sodium signal intensityderived from the muscle of interest.

**Table 1**: Sodium concentrations of prepared phantoms and recalibrated phantom sodium concentrations derived from the standard curve. The mean calculated phantom sodium concentration ± standard deviations (SD) are given as average from different measurements

|  |  |  |
| --- | --- | --- |
| Phantom No. | Prepared phantom concentration (mmol/L) | Calculated phantom concentration (mmol/L) |
| 1 | 15.4 | 14.5±0.8 |
| 2 | 30.8 | 29.8±1.0 |
| 3 | 44.6 | 42.2±0.6 |
| 4 | 66.4 | 64.3±0.7 |