

**Marker set**

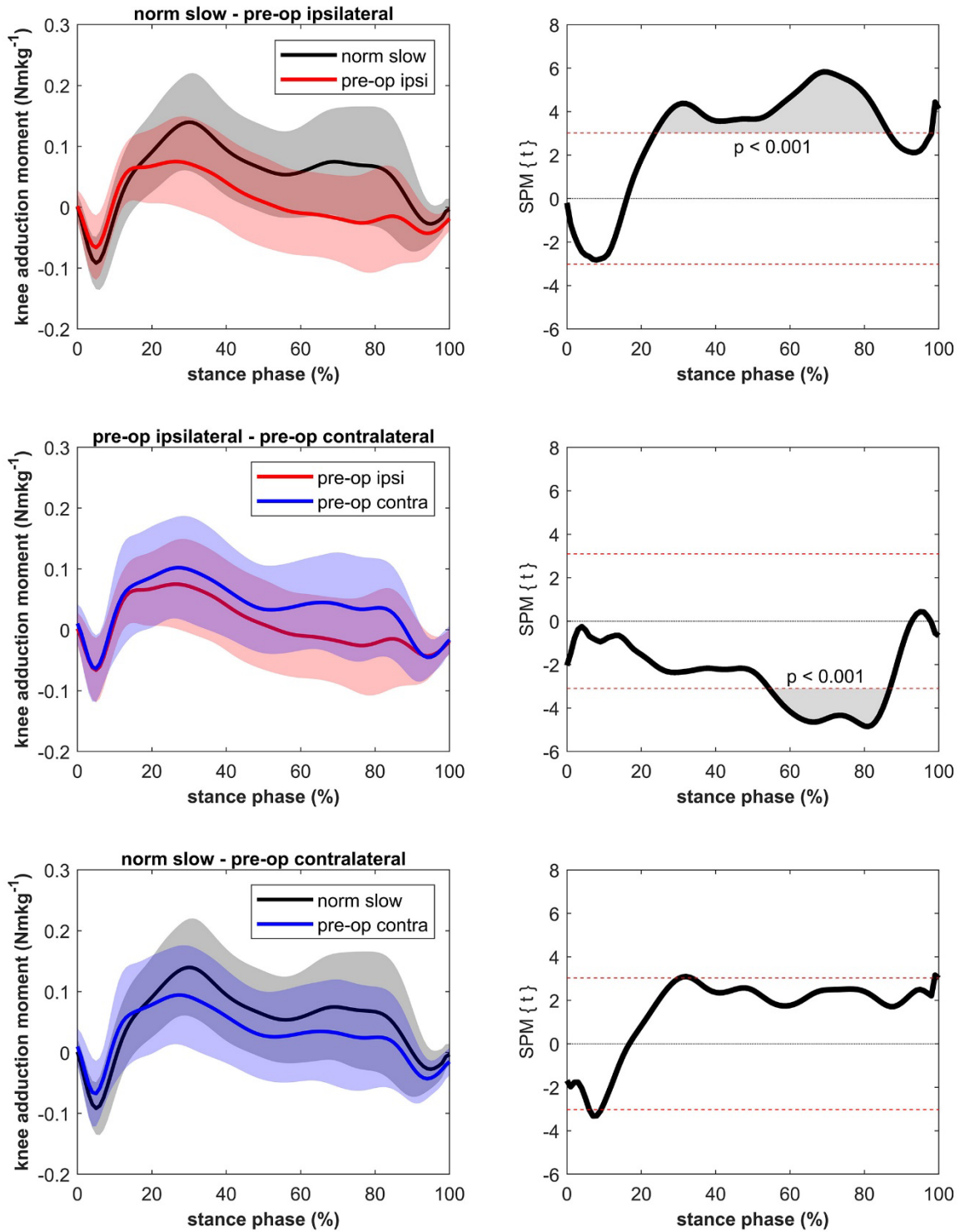
**Front (orange dots)**

- right/left acromioclavicular joint
- incisura jugularis
- xiphoid process
- right/left anterior superior iliac spine
- right/left trochanter major
- right/left lateral femoral condyle
- right/left medial femoral condyle
- right/left lateral malleolus
- right/left medial malleolus
- right/left 2<sup>nd</sup> metatarsal head

**Back (blue dots)**

- processus spinosus of the 7<sup>th</sup> cervical and 10<sup>th</sup> thoracic vertebra
- right/left posterior superior iliac spine
- right/left heel at the aspect of the achilles tendon insertion (at the same height as the toe markers)

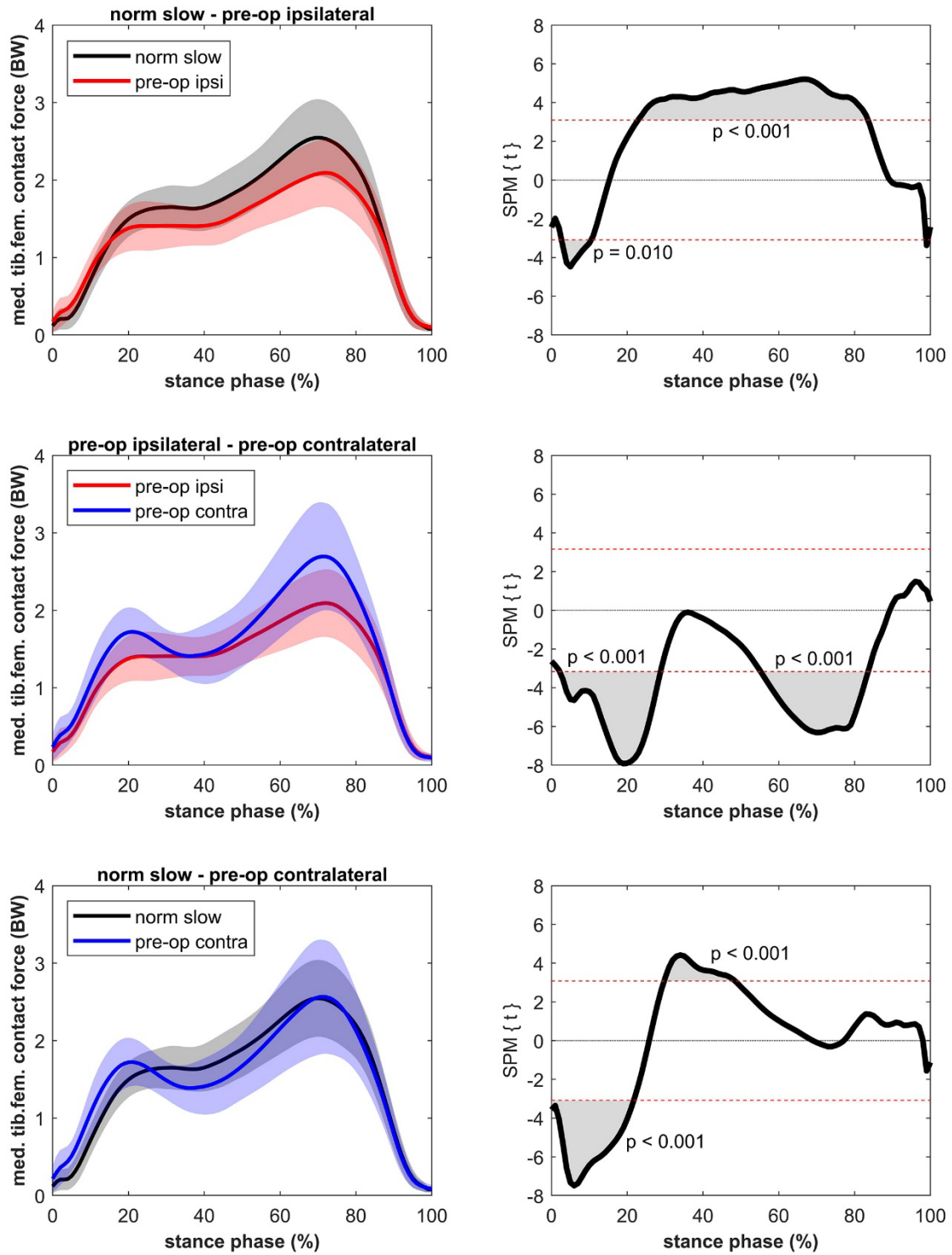
**Supplementary Figure 1:** Used marker set with reference to the anatomical landmarks.



**Supplementary Figure 2:** Curves of the preoperative external knee adduction moments (bands represent standard deviation) on the left side and the SPM *t*-test results on the right side; comparing controls (norm slow in black) to ipsilateral side of preoperative patients (pre-op ipsi in red) at the top, ipsilateral side of preoperative patients (pre-op ipsi in red) to the contralateral side (pre-op contra in blue) in the middle and controls (norm slow in black) to the contralateral side of the preoperative patients (pre-op contra in blue) at the bottom.

When the SPM *t*-values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and *p*-values are reported.

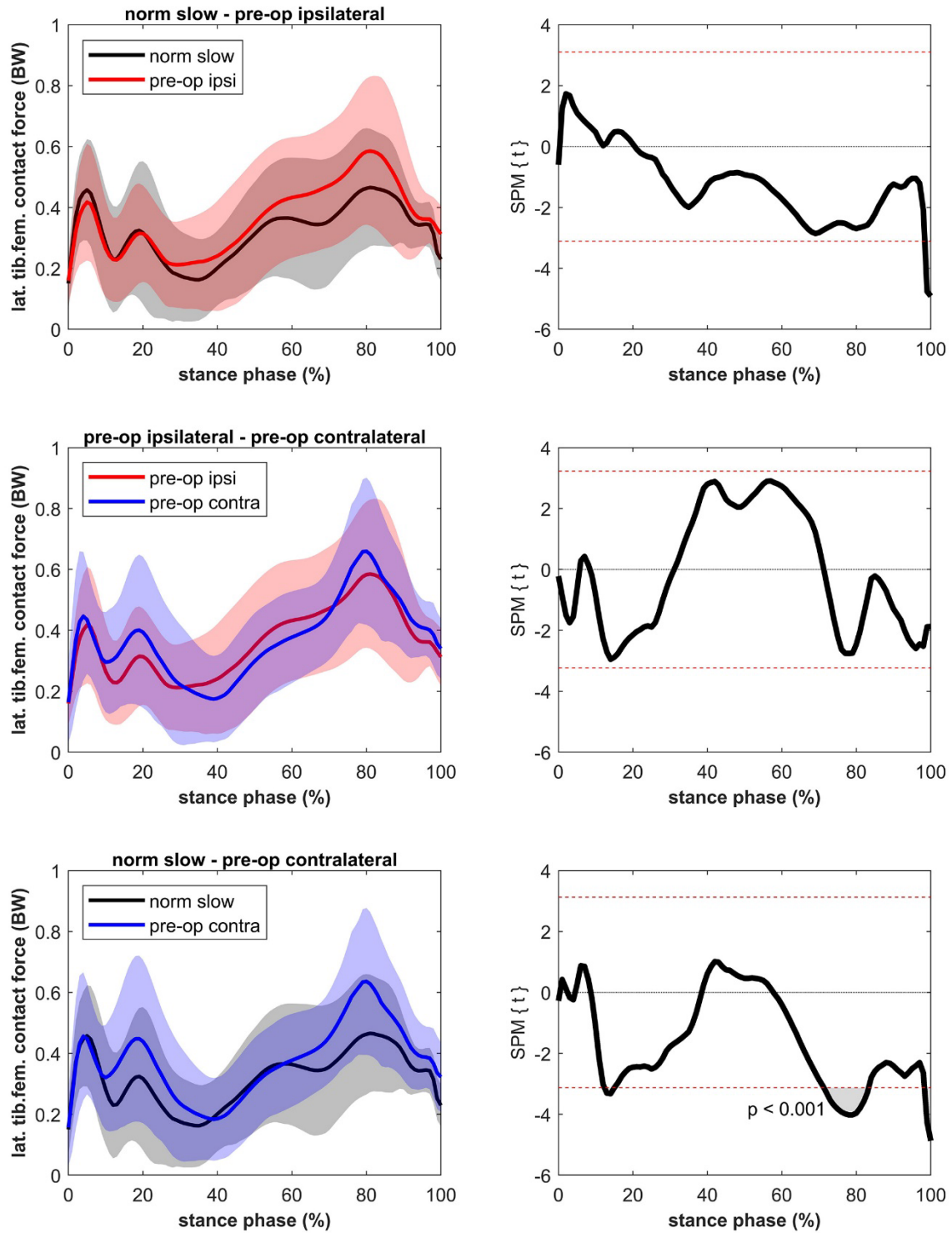
Knee adduction moments are normalized to body mass and expressed in Nmkg<sup>-1</sup>.



**Supplementary Figure 3:** Curves of the preoperative tibiofemoral contact force on the medial epicondyle (bands represent standard deviation) on the left side and the SPM  $t$ -test results on the right side; comparing controls (norm slow in black) to ipsilateral side of preoperative patients (pre-op ipsi in red) at the top, ipsilateral side of preoperative patients (pre-op ipsi in red) to the contralateral side (pre-op contra in blue) in the middle and controls (norm slow in black) to the contralateral side of the preoperative patients (pre-op contra in blue) at the bottom.

When the SPM  $t$ -values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and  $p$ -values are reported.

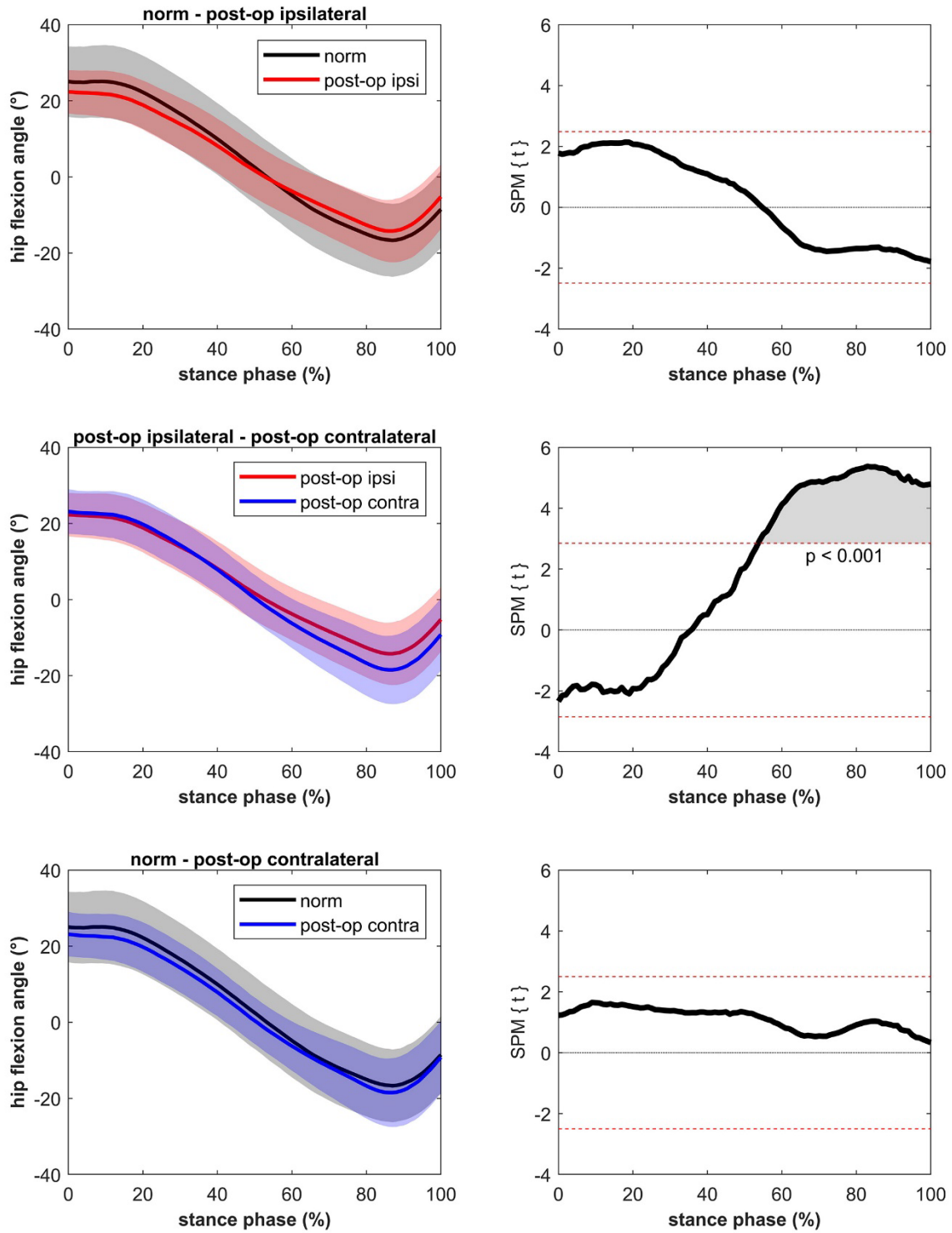
Contact forces are normalized to body weight (BW).



**Supplementary Figure 4:** Curves of the preoperative tibiofemoral contact force on the lateral epicondyle (bands represent standard deviation) on the left side and the SPM  $t$ -test results on the right side; comparing controls (norm slow in black) to ipsilateral side of preoperative patients (pre-op ipsi in red) at the top, ipsilateral side of preoperative patients (pre-op ipsi in red) to the contralateral side (pre-op contra in blue) in the middle and controls (norm slow in black) to the contralateral side of the preoperative patients (pre-op contra in blue) at the bottom.

When the SPM  $t$ -values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and  $p$ -values are reported.

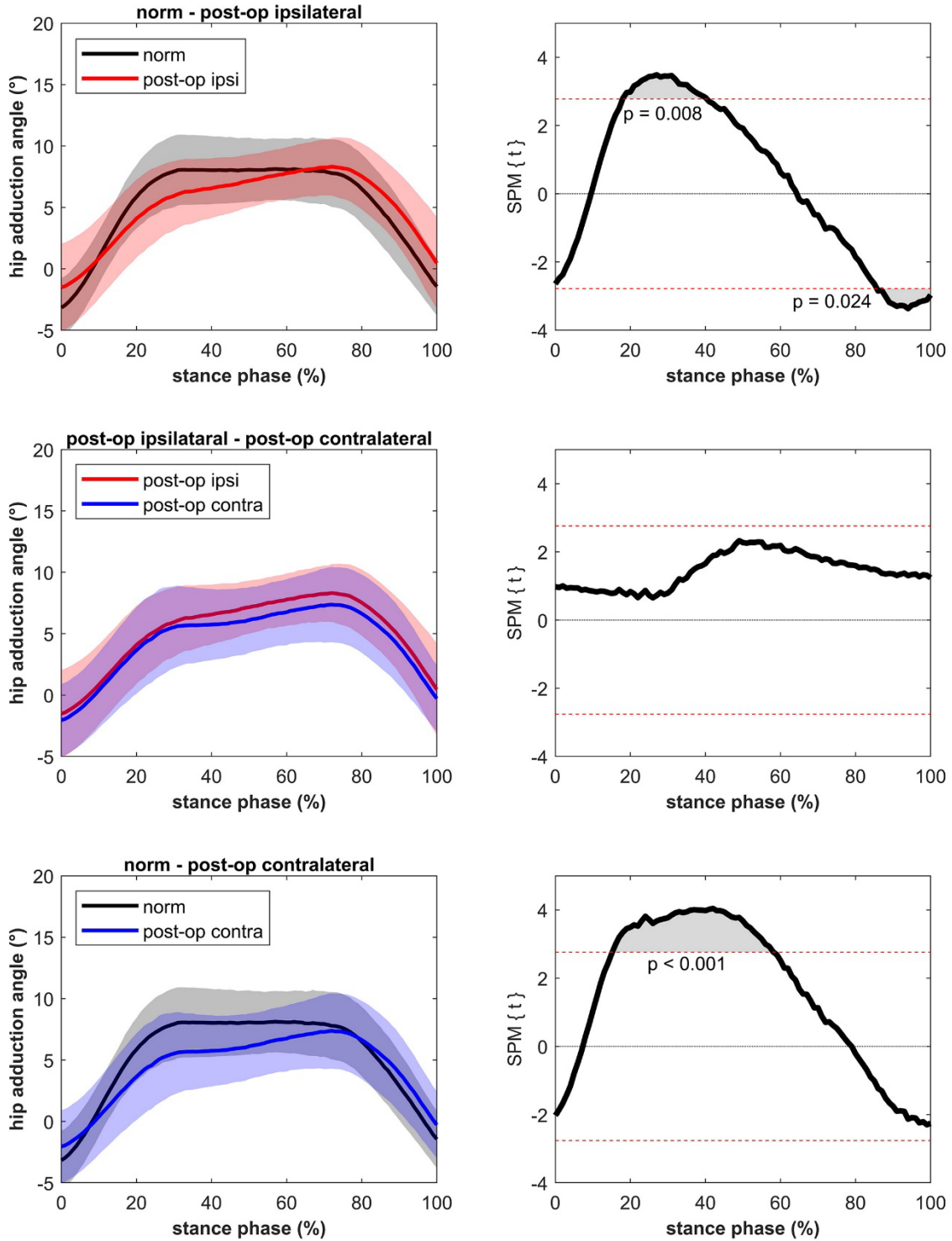
Contact forces are normalized to body weight (BW).



**Supplementary Figure 5:** Kinematic curves of the postoperative hip flexion/extension (bands represent standard deviation) on the left side and the SPM  $t$ -test results on the right side; comparing controls (norm in black) to ipsilateral side of postoperative patients (post-op ipsi in red) at the top, ipsilateral side of postoperative patients (post-op ipsi in red) to the contralateral side (post-op contra in blue) in the middle and controls (norm in black) to the contralateral side of the postoperative patients (post-op contra in blue) at the bottom.

When the SPM  $t$ -values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and  $p$ -values are reported.

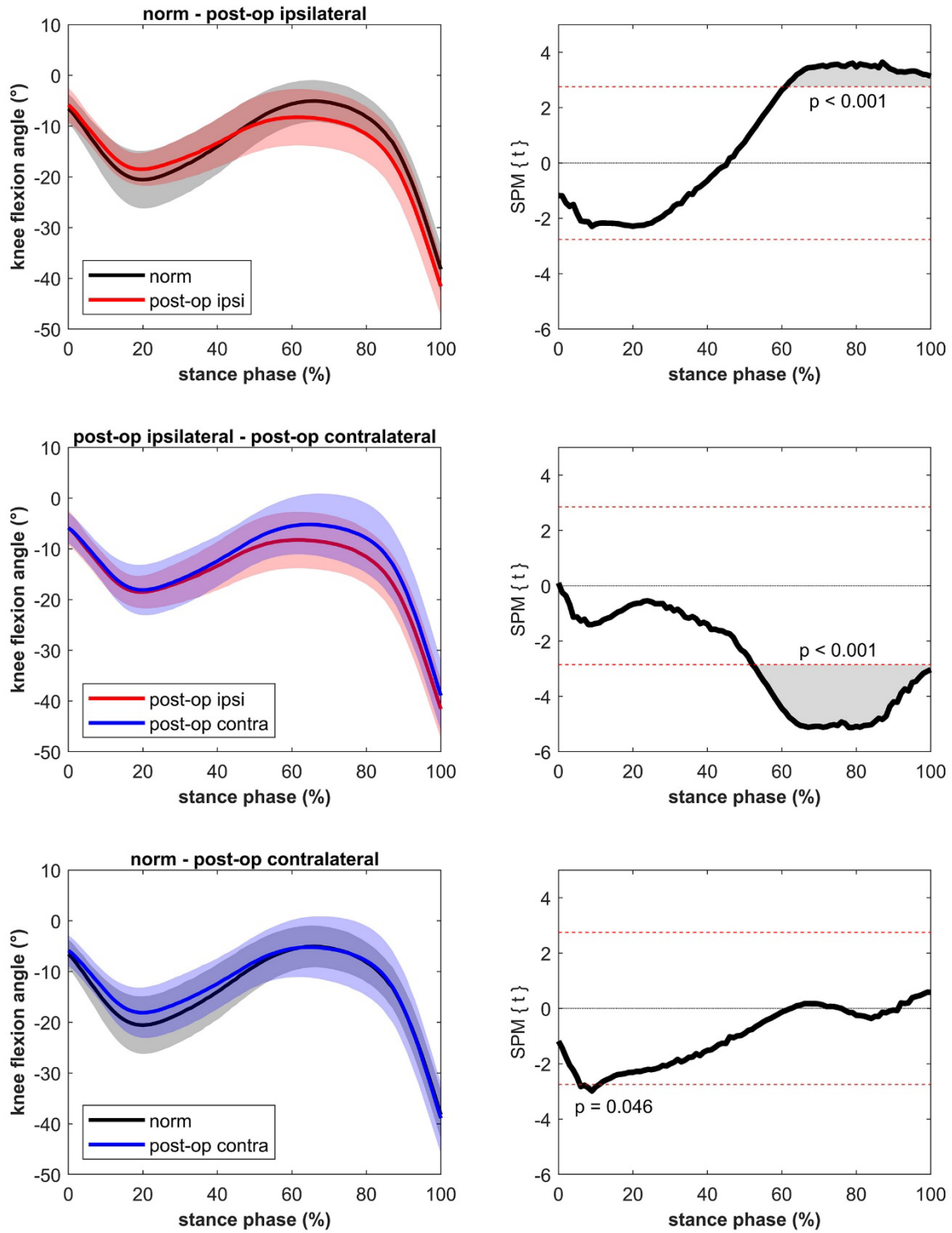
All angles are expressed in degrees: hip flexion is positive, whereas hip extension is negative.



**Supplementary Figure 6:** Kinematic curves of the postoperative hip adduction/abduction (bands represent standard deviation) on the left side and the SPM  $t$ -test results on the right side; comparing controls (norm in black) to ipsilateral side of postoperative patients (post-op ipsi in red) at the top, ipsilateral side of postoperative patients (post-op ipsi in red) to the contralateral side (post-op contra in blue) in the middle and controls (norm in black) to the contralateral side of the postoperative patients (post-op contra in blue) at the bottom.

When the SPM  $t$ -values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and  $p$ -values are reported.

All angles are expressed in degrees: hip adduction is positive, whereas hip abduction is negative.



**Supplementary Figure 7:** Kinematic curves of the postoperative knee flexion/extension (bands represent standard deviation) on the left side and the SPM  $t$ -test results on the right side; comparing controls (norm in black) to ipsilateral side of postoperative patients (post-op ipsi in red) at the top, ipsilateral side of postoperative patients (post-op ipsi in red) to the contralateral side (post-op contra in blue) in the middle and controls (norm in black) to the contralateral side of the postoperative patients (post-op contra in blue) at the bottom.

When the SPM  $t$ -values exceed the critical threshold (dashed horizontal line), differences are significant. Where significant differences are found for more than 4 successive time points (4% of the stance phase of the gait cycle), areas are shaded grey and  $p$ -values are reported.

All angles are expressed in degrees: knee extension is positive, whereas knee flexion is negative.