

### Additional file 3

#### Relative displacement in flexion

<b>LPF</b>	1	2	3	4
Xa	-0.1152	-0.0280	-0.0027	0.1107
Xb	-0.1465	-0.0397	-0.0052	0.0941
RDx(leftward)	0.0313	0.0117	0.0025	0.0166
Ya	-0.1098	0.1818	0.2765	0.5241
Yb	-0.0926	-0.0832	-0.0795	-0.0702
RDy(backward)	-0.0172	0.2650	0.3560	0.5943
Za	-0.9148	-0.7434	-0.6518	-0.6498
Zb	0.0110	0.0161	0.0195	0.0192
RDz(upward)	-0.9258	-0.7595	-0.6713	-0.669
<b>RD</b>	<b>0.9265</b>	<b>0.8045</b>	<b>0.7599</b>	<b>0.8950</b>
<b>TIFI</b>				
<b>TIFI</b>	1	2	3	4
Xa	-0.1084	-0.0506	-0.0391	0.0791
Xb	-0.1780	-0.0937	-0.0624	0.0027
RDx(leftward)	0.0696	0.0431	0.0233	0.0764
Ya	-0.2582	0.0586	0.1579	0.4251
Yb	0.0032	-0.0110	-0.0157	-0.0289
RDy(backward)	-0.2614	0.0696	0.1736	0.4540
Za	-0.8813	-0.7005	-0.6052	-0.6093
Zb	-0.0281	-0.0369	-0.0417	-0.0413
RDz(upward)	-0.8532	-0.6636	-0.5635	-0.568
<b>RD</b>	<b>0.8951</b>	<b>0.6686</b>	<b>0.5901</b>	<b>0.7311</b>
<b>SIS</b>				
<b>SIS</b>	1	2	3	4
Xa	0.0284	-0.0176	-0.0249	-0.0387
Xb	0.0318	-0.1315	-0.1851	-0.3898
RDx(leftward)	-0.0034	0.1139	0.1602	0.3511
Ya	-0.0781	0.1141	0.1649	0.2968
Yb	-0.0164	0.0735	0.1061	0.1954
RDy(backward)	-0.0617	0.0406	0.0588	0.1014
Za	-0.4232	-0.3329	-0.2868	-0.2931
Zb	-0.2494	-0.1892	-0.1573	-0.1587
RDz(upward)	-0.1738	-0.1437	-0.1295	-0.1344
<b>RD</b>	<b>0.1845</b>	<b>0.1878</b>	<b>0.2142</b>	<b>0.3894</b>
<b>S2AI-S1</b>				
<b>S2AI-S1</b>	1	2	3	4
Xa	0.1012	-0.0057	-0.0392	-0.0967
Xb	0.0949	-0.0132	-0.0525	-0.1039
RDx(leftward)	0.0063	0.0075	0.0133	0.0072
Ya	-0.1546	0.0372	0.0911	0.2460

Yb	-0.0884	0.0096	0.0300	0.0865
RDy(backward)	-0.0662	0.0276	0.0611	0.1595
Za	-0.2778	-0.1538	-0.1124	-0.1241
Zb	-0.1968	-0.1495	-0.1276	-0.1276
RDz(upward)	-0.081	-0.0043	0.0152	0.0035
<b>RD</b>	<b>0.1048</b>	<b>0.0289</b>	<b>0.0643</b>	<b>0.1597</b>
<b>S2AI-CS1</b>	1	2	3	4
Xa	0.0770	0.0267	0.0102	-0.0399
Xb	-0.0054	0.0259	-0.0004	-0.0396
RDx(leftward)	0.0824	0.0008	0.0106	-0.0003
Ya	-0.1863	0.0610	0.1094	0.2579
Yb	0.0948	0.0461	0.0423	0.0323
RDy(backward)	-0.2811	0.0149	0.0671	0.2256
Za	-0.3760	-0.2053	-0.1725	-0.1826
Zb	-0.1749	-0.2038	-0.2033	-0.1963
RDz(upward)	-0.2011	-0.0015	0.0308	0.0137
<b>RD</b>	<b>0.3553</b>	<b>0.0150</b>	<b>0.0746</b>	<b>0.2260</b>

Point a is located inside the fracture line, and point b is located outside the fracture line.

Xa and Xb respectively represent the displacement of the two points relative to the origin on the X axis. Ya and Yb respectively represent the displacement of the two points on the Y axis relative to the origin. Za and Zb respectively represent the displacement of the two points on the Z axis relative to the origin.

**LPF:** Lumbopelvic fixation ;

**TIFI:** Transiliac internal fixator ;

**SIS:** sacroiliac screw ;

**S2AI-S1:** S2-alar-iliac screw and S1 pedicle screw fixation ;

**S2AI-CS1:** S2-alar-iliac screw and contralateral S1 pedicle screw fixation.

**RDx:** The relative displacement of the two points a, b on the X axis. Leftward is a positive value

**RD<sub>y</sub>**: The relative displacement of the two points a, b on the Y axis. Backward is a positive value

**RD<sub>z</sub>**: The relative displacement of the two points a, b on the Z axis .Upward is a positive value

**RD**: The total relative displacement of two points a, b in the three-dimensional direction