Position of the Mechanical Pivot Point at Knee Height for Orthoses for Patients with Paralysis

The Orthosis Configurator has calculated the exact anatomical compromise pivot point according to Nietert P1 and the exact mechanical pivot point P for your planned orthosis. You will find the calculated values in the table below. We recommend you place the orthotic knee joint directly on this calculated mechanical pivot point. To do so, mark point P on the patient's leg according to our production technique. Later, the alignment aid is pierced through point P on the negative cast.

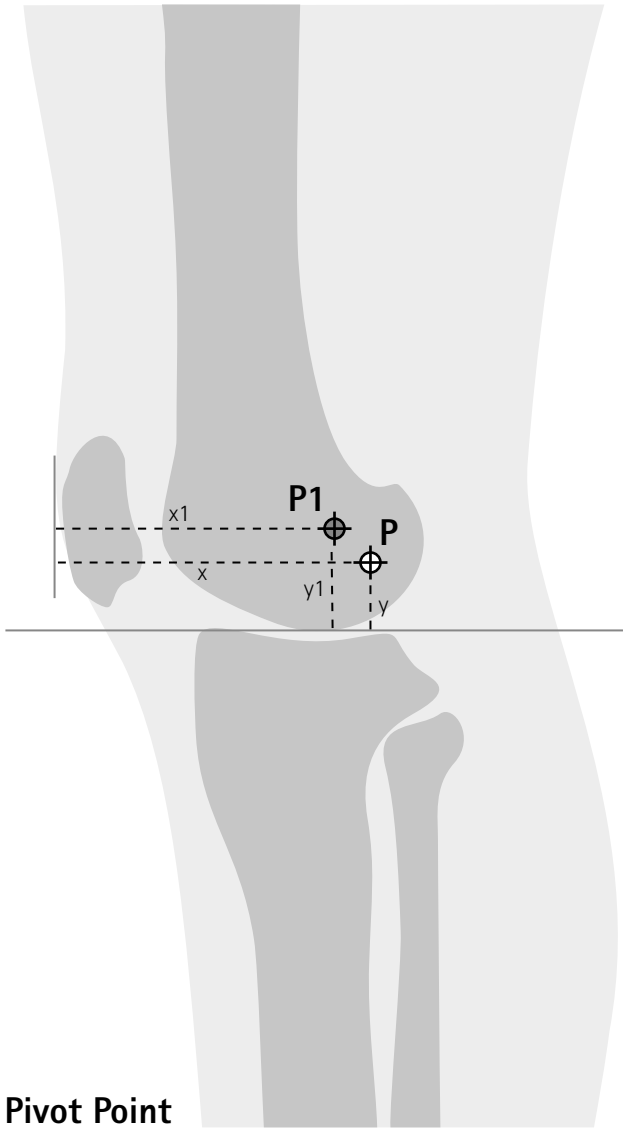
Why Does the Mechanical Pivot Point P Differ from the Anatomical Compromise Pivot Point According to Nietert P1?

Due to the rolling and sliding motion of the human knee, the anatomical pivot point moves on a centrode during flexion and extension. The anatomical compromise pivot point P1 centres the several pivot points of the centrode as precisely as possible on only one point.

For patients without any impairment on the muscles, it makes sense to place the axis of the orthotic knee joint on the anatomical compromise pivot point according to Nietert.

To increase the mechanical knee control for patients with insufficient knee and hip securing muscles, the pivot point of the orthotic knee joint has to lie behind the anatomical compromise pivot point. How far the mechanical pivot point lies behind the anatomical compromise pivot point depends on the degree of insufficiency of the affected muscle groups.

In order to reduce the bottom-up shifting of the femoral shell on the patient's leg and due to the difference to the centrode, the mechanical pivot point also has to lie further down.



P Mechanical Pivot Point

P1 Anatomical Compromise Pivot Point

Patient Data

first name	.....		surname	.....	
body height	.....	cm	leg side	.....	
system width	.....	mm	anatomical compromise pivot point according to Nietert (P1)	x_1	..... mm
muscle strength hip extension	.....			y_1	..... mm
muscle strength knee extension	.....		**ap measurement**		..... **mm**
				x	..... **mm**
			mechanical pivot point (P)	**y**	..... **mm**

Note: In order to ensure an exact calculation of the pivot point, the stated patient data and especially the ap measurement must be as precise as possible.

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