

Correlation Of Preoperative And Intraoperative Knee Flexion To Postoperative Knee Flexion In Total Knee Replacment

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INTRODUCTION:

Good range of movement (ROM) especially flexion is upmost important after total knee replacement (TKR). Prediction of flexion ROM is needed to ease patients' worry and expectation before operation (1). There is no preference either preoperative or intraoperative flexion to predict flexion post operation. We designed this study to determine the correlation of BOTH preoperative flexion and intraoperative flexion to postoperative knee flexion in a single study.

METHOD:

Total of 42 patients with 54 knees (unilateral and bilateral TKR) diagnosed to have osteoarthritis was recruited. Using a standard knee position protocol and digital photographic technique, the patient's knee flexion was taken preoperatively, intraoperative and postoperatively at 3rd month, and 6th month. The knee flexion measurements were measured using Photoshop application and Dr.Goniometer IOS iPhone application. All statistical analysis was performed using SPSS.

RESULT:

The mean values of all measurement were showed in Table 1 whereas correlations between the respective preoperative, intraoperative and postoperative knee flexion were shown in Table 2.

Table 1: The mean value and SD of flexion at preoperative, intraoperative, postoperative third month and sixth month

		Mean	SD
Preoperative	Active	113.62	16.75
	Passive	119.54	17.13
Intraoperative	Active	120.94	11.13
	Passive	131.90	11.82
Post op 3 months	Active	108.04	11.20
	Passive	114.52	11.88
Post op 6 months	Active	113.96	12.27
	Passive	120.04	12.69

Table 2: Correlation between the groups
 CC=Correlation coefficient, P-v= P value

		Postoperative 3 months					
		Active			Passive		
		CC	P-v	R ² _{Linear}	CC	P-v	R ² _{Linear}
Pre operative	Active	0.68	<0.001	0.47	0.67	<0.001	0.47
	Passive	0.67	<0.001	0.43	0.65	<0.001	0.43
Intra operative	Active	0.50	<0.001	0.25	0.48	<0.001	0.22
	Passive	0.41	0.002	0.17	0.41	0.003	0.27

		Postoperative 6 months					
		Active			Passive		
		CC	P-v	R ² _{Linear}	CC	P-v	R ² _{Linear}
Pre operative	Active	0.69	<0.001	0.47	0.69	<0.001	0.48
	Passive	0.66	<0.001	0.33	0.66	<0.001	0.44
Intra operative	Active	0.51	<0.001	0.26	0.50	<0.001	0.26
	Passive	0.40	0.002	0.16	0.44	<0.001	0.19

DISCUSSION:

This study shows stronger correlation between preoperative and postoperative knee flexion, similar finding showed in several studies (2,3). Patient is expected to return to his/her preoperative knee flexion particularly the active knee flexion at sixth month. Intraoperative drop test and passive ROM do not correlate with postoperative knee flexion as well as preoperative knee flexion. Our study adds value to current literature that preoperative active knee flexion has the strongest correlation with postoperative knee flexion.

CONCLUSION:

Preoperative knee flexion has the better correlation with postoperative knee flexion particularly the active knee flexion. Return of preoperative knee flexion ROM is mostly achieved at sixth month. This group of patient is still under follow-up to review long-term correlation.

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