

# Spreadsheet software to assess the locomotor disability: Submitting the actual software

Sir,

In a vast country like ours, we are often called upon as a part of our duty to assess disability resulting from trauma/burns in our patients. The latest guideline issued by the Government of India, for the assessment of locomotor disability, appeared as a Gazette notification in June 2001. We use this guideline regularly in our unit. During routine use we found the calculations which form a part of the guideline to be time consuming and difficult to explain in the court.

With a goal to simplify the calculation, I have previously adapted the gazette notification to a spread sheet.<sup>[1]</sup> In a spread sheet, the calculations happen automatically and they are reproducible in the form of a printout which can easily explain how the final figure was arrived at, in the court. Further, the spread sheet makes the whole process of assessment faster and user friendly. However, in the said article<sup>[1]</sup> although the utility of such software was presented and the software tested, it was not available for public use.

With the purpose of making this spread sheet software freely available (without any copy right) to all the care givers, who deal with trauma and burn patients and their rehabilitation,

I wish to submit the actual excel version (.xls) version of the file. I hereby submit two spread sheets, one for upper limb locomotor disability assessment and the other for the lower limb. Each of these programs was thoroughly tested for the entire range of values which are possible.

It may be noted that with the wide availability of apps which can run an .xls file in the android/iOS/windows operating systems, this spread sheet software can run on most mobile devices like the tablet and smart phone.

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## REFERENCE

1. Ellur S. Spreadsheet software to assess locomotor disability to quantify permanent physical impairment. Indian J Plast Surg 2012;45:530-7.

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GUIDELINES FOR LOCOMOTOR DISABILITY ASSESSMENT TO QUANTIFY PERMANENT PHYSICAL IMPAIRMENT										
AS PER THE GAZETTE OF INDIA NOTIFICATION 2001										
UPPER LIMB										
(All Data entries to be made in GREY cells only / Enter power as a fraction, example: 3/5)										
DEPARTMENT OF PLASTIC, RECONSTRUCTIVE SURGERY& BURNS.										
INSTITUTION NAME										
PATIENT NAME										
AGE										
SEX										
OUT PATIENT NO										
INPATIENT NO										
DIAGNOSIS										
COMPONENT	MOVEMENT	NORMAL VALUE (DEGREES)	RIGHT	LEFT	LOSS OF % RIGHT	LOSS OF % LEFT	MEAN LOSS RIGHT	MEAN LOSS LEFT	SUM OF % LOSS * 0.3 RIGHT	SUM OF % LOSS * 0.3 LEFT
RANGE OF MOVEMENT(Active)			RIGHT	0.0		LEFT			0.0	
SHOULDER	FLX -EXTN	220	220	220	0.0	0.0				
	ROTATION	180	180	180	0.0	0.0	0.0	0.0	0.0	0.0
	ABD - ADD	180	180	180	0.0	0.0				
ELBOW	FLX -EXTN	150	150	150	0.0	0.0	0.0	0.0	0.0	0.0
	SUP-PRO	180	180	180	0.0	0.0				
WRIST	FLX -EXTN	160	160	160	0.0	0.0	0.0	0.0	0.0	0.0
	RAD-ULNR D	55	55	55	0.0	0.0				

MUSCLE STRENGTH(ENTER POWER AS A FRACTION)		RIGHT		0.0		LEFT		0.0		
SHOULDER	FLEXION	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	EXTENSION	5/5	1	1	0.0	0.0				
	INT ROTATN	5/5	1	1	0.0	0.0				
	EXT ROTATN	5/5	1	1	0.0	0.0				
	ABDUCTION	5/5	1	1	0.0	0.0				
ELBOW	ADDUCTION	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	FLEXION	5/5	1	1	0.0	0.0				
	EXTENSION	5/5	1	1	0.0	0.0				
WRIST	PRONATION	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	SUPINATION	5/5	1	1	0.0	0.0				
	DORSI FLX	5/5	1	1	0.0	0.0				
	PALMAR FLX	5/5	1	1	0.0	0.0				
	RAD DEVIATN	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	ULNR DEVIAT	5/5	1	1	0.0	0.0				
COORDINATED ACTIVITIES		RIGHT		0.0		LEFT		0.0		
LIFTING OVERHEAD OBJECTS		9%	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
TOUCHING NOSE WITH FINGERS		9%	9.0	9.0	0.0	0.0				
EATING INDIAN STYLE		9%	9.0	9.0	0.0	0.0				
COMBING & PLAINTING		9%	9.0	9.0	0.0	0.0				
PUTTING ON SHIRT		9%	9.0	9.0	0.0	0.0				
ABLUTION INDIAN STYLE		9%	9.0	9.0	0.0	0.0				
DRINKING GLASS OF WATER		9%	9.0	9.0	0.0	0.0				
BUTTONING		9%	9.0	9.0	0.0	0.0				
TIE NARA / DHOTI		9%	9.0	9.0	0.0	0.0				
WRITING		9%	9.0	9.0	0.0	0.0				
COMBINING ROM & MUSCLE STRENGTH		RIGHT		0.0		LEFT		0.0		
ARM COMPONENT (COMBINING ROM+STRENGTH+CO. ACTS)		RIGHT		0.0		LEFT		0.0		
COMPONENT	MOVEMENT	NORMAL VALUE (DEGREES)	RIGHT	LEFT	LOSS OF % RIGHT	LOSS OF % LEFT	TOTAL LOSS RIGHT	TOTAL LOSS LEFT		
PREHENSION		RIGHT		0.0		LEFT		0.0		
OPPOSITION	INDEX	2%	2.0	2.0	0.0	0.0	0.0	0.0		
	MIDDLE	2%	2.0	2.0	0.0	0.0				
	RING	2%	2.0	2.0	0.0	0.0				
	LITTLE	2%	2.0	2.0	0.0	0.0				
LATERAL PINCH	KEY HOLDING	5%	5.0	5.0	0.0	0.0	0.0	0.0		
CYLINDRICAL GRASP	LARGE (4")	3%	3.0	3.0	0.0	0.0	0.0	0.0		
	SMALL (1")	3%	3.0	3.0	0.0	0.0				
SPHERICAL GRASP	LARGE (4")	3%	3.0	3.0	0.0	0.0	0.0	0.0		
	SMALL (1")	3%	3.0	3.0	0.0	0.0				
HOOK GRASP	LIFTING BAG	5%	5.0	5.0	0.0	0.0	0.0	0.0		
SENSATION		RIGHT		0.0		LEFT		0.0		
	THUMB	9%	9.0	9.0	0.0	0.0	0.0	0.0		
	INDEX	6%	6.0	6.0	0.0	0.0				
	MIDDLE	5%	5.0	5.0	0.0	0.0				
	RING	5%	5.0	5.0	0.0	0.0				
	LITTLE	5%	5.0	5.0	0.0	0.0				
STRENGTH		RIGHT		0.0		LEFT		0.0		
	GRIP	20%	20.0	20.0	0.0	0.0	0.0	0.0		
	PINCH	10%	10.0	10.0	0.0	0.0				
HAND COMPONENT		RIGHT		0.0		LEFT		0.0		
COMBINING ARM + HAND COMPONENTS		RIGHT		0.0		LEFT		0.0		
ADDITIONAL WEIGHTAGE(Maximum 10%)		RIGHT		0.0		LEFT		0.0		
PAIN			0.0	0.0						
INFECTION			0.0	0.0						
DEFORMITY			0.0	0.0						
MALALIGNMENT			0.0	0.0						
CONTRACTURES			0.0	0.0						
COSMETIC DISFIGUREMENT			0.0	0.0						
DOMINANT EXTREMITY			0.0	0.0						
SHORTENING(<1" 0%, EACH 1">1" 2%)			0.0	0.0						
(Above should be continuous & persistent)			0.0	0.0						
TOTAL DISABILITY		RIGHT		0.0		LEFT		0.0		

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LOWER LIMB										
(All Data to be entered in GREY cells only / Enter Power as a fraction, example: 3/5)										
DEPARTMENT OF PLASTIC, RECONSTRUCTIVE SURGERY & BURNS.										
INSTITUTION NAME										
PATIENT NAME										
AGE										
SEX										
OUT PATIENT NO										
INPATIENT NO										
DIAGNOSIS										
COMPONENT	MOVEMENT	NORMAL VALUE (DEGREES)	RIGHT	LEFT	LOSS OF % RIGHT	LOSS OF % LEFT	MEAN LOSS RIGHT	MEAN LOSS LEFT	SUM OF % LOSS * 0.3 RIGHT	SUM OF % LOSS * 0.3 LEFT
RANGE OF MOVEMENT(Active)			RIGHT	0.0		LEFT		0.0		
HIP	FLX -EXTN	140	140	140	0.0	0.0	0.0	0.0	0.0	0.0
	ROTATION	90	90	90	0.0	0.0				
	ABD - ADD	90	90	90	0.0	0.0				
KNEE	FLX -EXTN	125	125	125	0.0	0.0	0.0	0.0	0.0	0.0
ANKLE & FOOT	DORS-PLTR FLX	70	70	70	0.0	0.0	0.0	0.0	0.0	0.0
	INV-EVERSION	60	60	60	0.0	0.0				
MUSCLE STRENGTH (ENTER POWER AS A FRACTION)			RIGHT	0.0		LEFT		0.0		
HIP	FLEXION	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	EXTENSION	5/5	1	1	0.0	0.0				
	INT ROTATN	5/5	1	1	0.0	0.0				
	EXT ROTATN	5/5	1	1	0.0	0.0				
	ABDUCTION	5/5	1	1	0.0	0.0				
	ADDUCTION	5/5	1	1	0.0	0.0				
KNEE	FLEXION	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	EXTENSION	5/5	1	1	0.0	0.0				
ANKLE & FOOT	DORSI FLX	5/5	1	1	0.0	0.0	0.0	0.0	0.0	0.0
	PLANTAR FLX	5/5	1	1	0.0	0.0				
	INVERSION	5/5	1	1	0.0	0.0				
	EVERSION	5/5	1	1	0.0	0.0				
MOBILITY (COMBINING ROM & MUSCLE STRENGTH)			RIGHT	0.0		LEFT		0.0		
COMPONENT	ATTRIBUTE	NORMAL VALUE (DEGREES)	RIGHT	LEFT	LOSS OF % RIGHT	LOSS OF % LEFT				
STABILITY COMPONENT			RIGHT	0		LEFT		0		
WALKING ON PLAIN SURFACE		10	10	10	0	0				
WALKING ON SLOPE		10	10	10	0	0				
CLIMBING STAIRS		10	10	10	0	0				
STANDING ON BOTH LEGS		10	10	10	0	0				
STANDING ON AFFECTED LEG		10	10	10	0	0				
SQUATTING ON FLOOR		10	10	10	0	0				
SITTING CROSS LEG		10	10	10	0	0				
KNEELING		10	10	10	0	0				
TAKING TURNS		10	10	10	0	0				
COMBINING MOBILITY & STABILITY			RIGHT	0.0		LEFT		0.0		
EXTRA POINTS (MAXIMUM 10%)			RIGHT	0		LEFT		0		
PAIN										
Severe		9								
Moderate		6								
Mild		3								
DEFORMITY										
In Functional Position		3								
In Non Functional Position		6								
LOSS OF SENSATION										
Complete Loss		9								
Partial Loss		6								
COMPLICATIONS										
Superficial Complication		3								
Deep Complication		6								
SHORTENING										
First half inch		0								
For every additional half inch		4								
TOTAL DISABILITY			RIGHT	0.0		LEFT		0.0		