ANNOTATION **LIMITATION OF MOBILITY IN MAJOR JOINTS OF 231 SPORTSMEN**

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Introduction

A detailed measurement of the range of movement of all the major joints is made as a routine during physiological tests of sportsmen which are carried out at this College. All these tests were made by one of us (P.R.T.). The test

was of the passive range of the joint. A loss of movement of more than 10% was recorded as a limitation of mobility.

JOINT MOVEMENT	Number Tested 231 TOTAL % OF ATHLETES TESTED		Number Tested 70 % OF SOCCER		Number Tested 23 % OF SPRINTERS		Number Tested 98 % OF CYCLISTS		Number Tested 33 % OF MIDDLE DISTANCE						
	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT					
ANKLE															
Dorsi-flexion	13.8	12.1	22.8	21.5	17.0	8.5	6.0	3.0	9.9	16.5					
Plantar-flexion	6.8	4.7	7.1	5.7	8.5	—	5.0	2.0	6.6	9.9					
Inversion	4.3	3.4	2.8	2.8	—	—	3.0	1.0	9.9	13.2					
Eversion	3.8	3.0	1.4	1.4	—	—	3.0	1.0	9.9	13.2					
KNEE															
Flexion	0.86	0.43	1.4	—	—	—	1.0	1.0	—	—					
Extension	0.43	—	—	—	—	—	—	—	3.3	—					
HIP															
Flexion	34.8	31.4	43.0	40.1	25.5	21.3	32.0	29.0	30.3	29.7					
Extension	21.1	16.8	17.1	15.7	29.8	25.5	15.0	9.0	39.6	36.3					
Adduction	1.3	1.7	4.2	4.2	—	—	—	—	—	3.3					
Abduction	1.3	1.3	2.8	2.8	—	—	1.0	1.0	—	—					
Rotation	—	—	—	—	—	—	—	—	—	—					
WRIST															
Flexion	1.3	0.86	—	—	—	4.3	3.0	1.0	—	—					
Extension	0.86	0.86	—	—	—	4.3	2.0	1.0	—	—					
Adduction	—	0.43	—	1.4	—	—	—	—	—	—					
Abduction	0.43	0.86	—	1.4	—	—	1.0	1.0	—	—					
Pronation	0.43	0.43	1.4	—	—	4.3	—	—	—	—					
Supination	—	0.43	—	—	—	4.3	—	—	—	—					
ELBOW															
Flexion	0.43	0.43	—	—	4.3	—	—	—	—	3.3					
Extension	—	—	—	—	—	—	—	—	—	—					
SHOULDER															
Flexion	34.4	32.7	43.0	43.0	34.0	29.8	29.0	28.0	30.0	29.7					
Extension	24.9	23.7	30.0	30.0	17.0	17.0	26.0	23.0	13.2	13.2					
Adduction	2.2	2.2	2.8	2.8	—	—	2.0	2.0	—	—					
Abduction	1.7	2.2	1.4	2.8	—	—	2.0	2.0	—	—					
Rotation	1.7	2.2	—	—	—	—	3.0	4.0	—	—					
JOINT MOVEMENT	% OF ATHLETES			% OF SOCCER			% OF SPRINTERS			% OF CYCLISTS			% OF MIDDLE DISTANCE		
	L	D	C	L	D	C	L	D	C	L	D	C	L	D	C
SPINE															
Flexion	34.8	18.5	0.86	40.1	21.4	—	21.3	21.3	—	28.0	15.0	1.0	52.8	19.8	—
Extension	19.4	37.4	1.7	25.7	45.8	2.8	8.5	25.8	—	13.0	33.0	—	29.7	36.3	3.3
Lat: Flexion R	15.5	13.8	1.7	21.4	18.5	1.4	4.3	8.5	—	15.0	12.0	1.0	13.2	13.2	3.3
Lat: Flexion L	16.8	14.2	1.7	21.4	18.5	1.4	4.3	8.5	—	18.0	13.0	1.0	9.9	13.2	3.3
Rotation	8.2	7.7	1.3	11.3	11.3	1.4	—	—	—	9.0	6.0	—	—	6.6	—
ATHLETICS THROWING EVENTS n = 7 Sample not large enough for analysis															

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In this paper we intend merely to present our findings and to comment briefly upon them. Speculation as to the reason for the loss of mobility will not be attempted since the purpose of the original test was merely to record the range of movement and not to investigate the cause. In the same way we do not intend to comment on any change in the range of movement which was found in subsequent tests after specific mobilising exercises had been given. The figures refer to sportsmen presenting themselves for test for the first time. The tests were carried in the Human Performance Laboratory at Saint Luke's College between September 1970 and March 1974.

Discussion

A surprising number of sportsmen have limitation of mobility in the major joints. There is evidence that each sport shows limitation in specific joints. Thus the percentage of cyclists who have loss of range in the ankle

joint is below the average, whilst the percentage of soccer players is above the average.

Limitation of hip mobility is also commonly found; tight hamstrings were found in the majority of those who had limitation of hip flexion.

The shoulder joint was also commonly affected in all sports but, once again the soccer players showed up badly. It is not surprising that the cyclists also showed a higher percentage who had limitation of movement in this joint, although they were still below the average for the whole group.

In the spine, limitation of movement was found mainly in flexion of the lumbar region and in extension of the dorsal spine. Once again the percentage of soccer players with limitation was above the average, but it should be noted that 50% of middle distance runners tested had limitation of flexion of the lumbar spine.

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