

Tetraplegic wheelchair basketball

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Tetraplegic wheelchair basketball was started in the Kanagawa Rehabilitation Center (KRC) as a recreational sport for tetraplegics in 1980. In this game, there are two goals on each side, thus we call it 'twin basketball'. One goal is of ordinary height and the other is low. Three ways of shooting and two ways of dribbling are allowed according to the player's level of tetraplegia and technical skill. The first official game was held in 1983. Since then, the game has been taken up in several areas of Japan. The first All Japan championship game was held in 1987, ten teams including 98 tetraplegics attending. Five years later, in the sixth championship game, 18 teams including 171 tetraplegics attended. As official physicians, we have examined the physical condition and technical skills of all players since 1987. All players are classified, and assigned points from 1 to 4.5. The total number of points of five players in one team are limited to 11.

Keywords: tetraplegics; wheelchair sports; basketball.

Tetraplegic wheelchair basketball was started in the Kanagawa Rehabilitation Center (KRC) as a recreational sport for tetraplegics in 1980. At first we used ordinary goals, then the height of the goals was lowered (for free throws), according to the physical status of the wheelchair athletes (Fig 1). We examined their neurological levels and their ball handling skills, and then

selected several ways of shooting and dribbling. We call the game 'twin basketball'.

As official physicians, we have examined and assessed the physical condition and technical skills of the players, and assigned points from 1.0 to 4.5 (Tables I, II). Three ways of shooting and two ways of dribbling are allowed according to their points.

The first official game, the KRC team

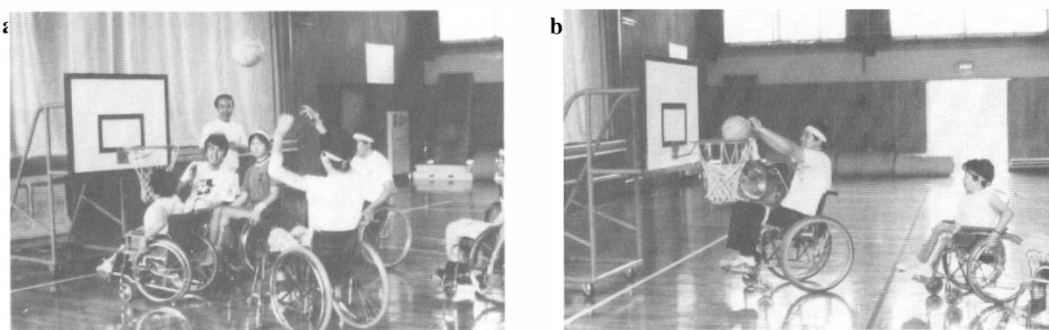


Figure 1 (a) At first, we used ordinary goals. (b) Then the height of the goals was made lower according to the physical status of the wheelchair players.

Table I Example of twin basketball classification form

Name:	Sex:	Team:	Address:	Regist. No:	Tel. No:
Date of trauma:			Etiology:		
Level of lower functioning motor segment:			Level of sensory perception:		
Complete or incomplete tetraplegia:					
Complications: spasticity, contracture, ankylosis, fracture					
Class		MMT	Right	Left	Level
1A	a	Biceps			C5
	b	Ext. carpi. rad.			C6
	c	Pronator			
	d	Triceps (1, 2, 3)			
1B	e	Triceps (4, 5)			C7
	f	Finger extension			
1C	g	Finger flexion			C8
2	h	Interossei			T1

Classification of physical examination (R, L) 1A, 1B, 1C, 2,
 Classification of technical skills:
 Ways of shooting: in or out of the circle, ordinary
 Points of player:
 Date of examination: Doctor's name:

Table II Twin basketball technical check sheet

Name:	Sex:	Team:	Regist. No:
<i>Check points</i>			
1 Lifting a ball over the head			
2 Elevating one arm			
3 Two hands shoot over the shoulder			
4 Lifting the trunk from a forward lean on the wheelchair			
<i>Test for incomplete tetraplegics</i>			
1 Lifting the trunk from a forward lean on the wheelchair without the use of upper extremities			
2 Lifting the trunk from a lateral bend on the wheelchair without the use of upper extremities			
Points of field tests: 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5,			
Date of examination: Examined by:			

versus the National Hakone Hospital team, was held in 1983. Since this game, twin basketball has become popular in several Japanese rehabilitation centres for the

enjoyment and physical exercise of tetraplegics.

The first All Japan championship game was held in Nagoya in 1987, and 10 teams, consisting of 98 players, attended. Of those 98 players, 94 were male and four were female, aged 17-50, average 29.1 years. Intervals from the onset of spinal cord injuries were 1 year and 5 months to 27 years, average 7.8 years. The causes of the spinal cord injuries were 95 from traumatic injury, and three from spinal disease. Trauma derived from 47 traffic accidents, 29 sports accidents, 16 falls, two blows by a heavy object, and one other. Diseases included one spinal muscular dystrophy, one bleeding into the spinal cord, and one spinal cord tumour (Table III). Levels of paralysis of complete tetraplegia were decided according to Zancolli's classification (Table IV). Eighty-seven players had complete lesions: three C5B, one C6A, seven C6B1, 22 C6B2, 31 C6B3, 10 C7, eight C8, and five T1. There were also 11 incomplete tetraplegics. Later, the rules were changed and T1

Table III Details of 98 players who attended the first all Japan championship games

		Number
Male		94
Female		4
Combined ages (yrs)	17-50	
Average age (yrs)	29.1	
Duration of SCI (yrs)	1.5-27	
Average duration (yrs)	7.8	
<i>Aetiology</i>		
Trauma		
Traffic accident		47
Sport		29
Fall		16
Blow by heavy object		2
Other		1
Total		95
Disease		
Spinal muscular dystrophy		1
Bleeding into the spinal cord		1
Spinal cord tumour		1
Total		3

Table IV Levels of paralysis

Complete (Zancolli)		Incomplete
C5B	3	
C6A	1	
C6B1	7	
C6B2	22	
C6B3	31	
C7	10	
C8	8	
T1	5	
Total	87	11

players were excluded. Seventy-six of 98 players (77.6%) could drive a car.

The All Japan championship game has been held every year since 1987, and 18 teams consisting of 171 tetraplegics attended the sixth game in Himeji in 1992.

Discussion

For tetraplegics, individual sports such as archery have been popular. But team sports

were not common before twin basketball was started. The game has become popular in Japan, and the number of players in championship games has increased from 98 to 171 within 5 years. This sport is enjoyable, provides important physical exercise, and encourages participation in social activities.¹ Physicians familiar with the medical aspects of tetraplegic people must participate as official physicians to evaluate the sports people's physical condition.

Rules of twin basketball

- 1 All players must have been assessed and assigned their points from 1.0 to 4.5 according to their level of tetraplegia and their technical skills. The total number of points of five players in one team are limited to 11.
- 2 Three ways of shooting and two ways of dribbling are allowed for the players according to their points.
- 3 Two goals on each side are available; one is an ordinary goal (height 3.05 m) and another (1.20 m) is low on the circle for free throws.
- 4 For classification of players see Table V.
- 5 Time rules: the 10-seconds rule and the 30-seconds rule are doubled. (The game is not as speedy as paraplegic wheelchair basketball).²
- 6 Players can push the wheelchair twice for one dribbling. Players with red hairbands cannot do ordinary dribbling, therefore they can lift the ball from the lap. These players must lift the ball above their chest during the dribbling motion.

Table V Classification of players

Goal	Shooting from	Points of players
Ordinary		3.5-4.5 (N)
Lower	Outside the free-throw circle	2.0-2.5 (W)
	Inside the free-throw circle	1.0-1.5 (R)

N = no hairband; W = white hairband; R = red hairband.

References

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