

## SCORING SKILLS PERFORMANCES OF THE TOP INTERNATIONAL MEN'S SITTING VOLLEYBALL TEAMS

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This survey attempts to establish the structure of scoring skills in sitting volleyball. The sample comprised 12 of the top international men's sitting volleyball teams that took part in the World Sitting Volleyball Championship in Tehran in 1998. To evaluate the competition we used Volleyball Information System (VIS), version 1.50 and forms P-2, P-4. Statistical Match Analysis (SMA) was used for presenting the team performances in scoring skills: attack, block, serve and opponent error. The result of this study will allow the players, coaches, officials and others interested in sitting volleyball to get a closer look at this specific sporting activity for the disabled.

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*Keywords: competitive sport, sitting volleyball, volleyball scoring skills, physically disabled.*

### INTRODUCTION

As a high level competitive sport, sitting volleyball arrived on the international scene relatively late, in 1980. That year sitting volleyball became an official event at the Paralympic Games for the first time in Arnhem, The Netherlands. Medal winners at this turning-point tournament were The Netherlands, gold, Sweden, silver and Yugoslavia, bronze. Nowadays, there are several international top level sitting volleyball teams in four world zones: Arab / African, Asia / Oceania, Pan American and European. If we take a look at the development of elite sitting volleyball in regard to the zones and their rankings in international championships, it becomes evident that Europe has lost its top position, but remains a leading zone in men's sitting volleyball. Some national federations have established long term elite sitting volleyball development programmes which are supported by governments or privately by companies. Without long terms programmes and quality management, it is impossible for national team to stay at the top. Some federations develop national teams based on their club system and their national competition programmes, others train their national players year around in special camps. To become number one in the world of sitting volleyball, the team must create something new in play and training and must work hard and to a superior level.

Sitting volleyball is a team sport which originated in the Netherlands. Over 90 countries around the world now play the game. We follow the FIVB (Federation Internationale de Volleyball) rules of the game, with additions from the WOVD (World Organisation Volleyball for Disabled) rules and regulations for sitting volleyball. Some characteristics and facts: the playing

court is a rectangle measuring 10 m × 6 m, the attack line is drawn 2 m back from the central line, the net, 0.80 m by 6.50 m is placed vertically over the centre line and is 1.15 m high for the men, players use hands for moving, sweeping on the playing court, buttocks must remain on the floor when playing the ball, block on the service is allowed, for official tournaments a classification on minimum disability is required.

Elite competitive sport is probably the most disputable part of the whole sport sphere regarding the physically disabled and their participation. The demonstration of power and abilities is common in sport generally and specifically in the sport for disabled including top sitting volleyball (Vute, 1994). Participants at the sport excellence level generally engage in sport to fulfill an intense personal desire to excel and to reach their personal limits. In doing so, they achieve high standards of performance accompanied by appropriate personal, physical, intellectual and emotional qualities. At this level of participation, there must be a willingness to accept the required external conditions imposed by coaches, officials and others (Steadward, 1992). Volleyball sport enables two very important processes, identification of an individual and integration into the collective. Satisfaction means complete identification with the team according to the needs, motives, interests, expectations, valuables and models. Satisfaction also means reward and amply repays the effort for all what one has done in their life as coach or player (Krevsel, 1997). Victory and the title of champion are becoming more and more important in the competition of people with physical disabilities. Emphasizing the importance of success is reflected in clear expectations of some benefits that are possible through sports activities (Vute, 1992). To study volleyball statistics we should be fully aware of

the following (Papageorgiou & Spitzley, 1996; Beal, Brassey & Brown, 1993): first, the need for a fundamental understanding of the available principles regarding volleyball analysis. There are many different tools that can be used and invented. Statistics go far beyond kills and aces; second, that understanding volleyball statistics can better prepare the volleyball coach to record and analyse his or her team's performance; third, that understanding volleyball statistics can help the coach decide on the most important skills to be measured; fourth, that if all the coaches and a staff understand volleyball statistics, the statistics can give direction to staff assignments and full advantage can be taken of available personnel.

### THE MAIN AIM

The purpose of this study is to find out the structure of scoring skills in elite international men's sitting volleyball teams, therefore we intend to:

- analyse top sitting volleyball team performances: set score, points score and playing time,
- find out the structure of scoring skills (attack, block, serve, opponent error) of the teams ranking from 1st to 6th place,
- find out the structure of scoring skills (attack, block, serve, opponent error) of the teams ranking from 7th to 12th place,
- establish a model of scoring skills of the top international men's sitting volleyball teams.

### METHODS

The study group consisted of the national sitting volleyball men's teams who qualified for the 7th World Sitting Volleyball Championship in Tehran, Iran in April 1998. The number of teams taking part in this Championship was 12, with 127 active players, including Australia (AUS, 11 active players, final rank XII.), Bosnia and Herzegovina (BIH, 12, III.), Egypt (EGY, 12, VII.), Finland (FIN, 10, II.), Germany (GER, 12, V.), Iran (IRI, 12, I.), Iraq (IRQ, 11, IX.), Japan (JPN, 8, XI.), Kazakhstan (KZK, 11, VIII.), the Netherlands (NED, 10, IV.), Norway (NOR, 10, VI.) and Slovenia (SLO, 8, X.). Teams ranking from 1st to 6th place were represented by 66 active players and teams ranking from 7th to 12th by 61 active players. Eligible for competitions in sitting volleyball at the World Championships are those athletes with disabilities defined as amputees and "les autres", which includes motor paresis or paralysis of limb(s), displasia or luxation of the coxae, total endoprosthesis of knee or hip(s) and instability forward / backward of 1.5 cm of the knee.

The subject of this survey is the teams' performance in scoring skills: attack, block, serve and opponent error. Volleyball Information System (VIS), version 1.50 (Build 36), forms P - 2, P - 4 and Statistical

Match Analysis (SMA) were used to present the results. Volleyball Information System (VIS), a computer system for match analysis, was developed by FIVB, with the main purpose to provide quality data on match results and on team and individual player statistics. Form P - 2 provides data on team performances: attack (total attempts, points scored, side-out), block (total attempts, points scored, side-out), serve (total attempts, points scored), opponent error (points scored, side-out), set score, points score and playing time. Form P - 4 provides match results and team ranking. Statistical Match Analysis (SMA) is the essential method of match analysis. The immense amount and diversity of playing actions require classification into categories. The most common classification takes into account tactical aspects which include basic skills of attack: hitting the ball into opponent's side, block: a play by one or more players attempting to stop a spike at the net, serve: the act of putting the ball in play and opponent error: team own faults which result in loss of service or a point to the opposing team, for example: four contacts, double fault, double contact, ball out, held ball, ball touches the net from the service. The data were collected with computers by specially trained volleyball officials, rating in two stages, score and error.

### RESULTS AND DISCUSSION

Objective measurement, evaluation, analysis and interpretation of player and team performance are vital in scientific training and development of top class teams in modern volleyball. Sitting volleyball is inseparable part of this orientation. There are three main elements characterising modern top volleyball which are indispensable and decisive for the highest performance: velocity and variety of play, height of action above the net and perfection of skills. These elements are closely linked and form the so called "magic triangle". Without a high level of all three, there will not be a top result in international volleyball competitions. Weakness in one can hardly be compensated for by advantages in the other two. Best results may be expected when the three are balanced. If there is a disadvantage in one element, for instance in height of action above the net, one has to work very hard to compensate for this lack by extraordinary performance in one or both of the others. The same standards are set for sitting volleyball, given that jumps are not an element in this specific volleyball game.

#### Sitting volleyball top teams performances

In the Tehran World Sitting Volleyball Championship the 12 men's national teams were divided into two pools of 6 teams. In the preliminary round, each team played all others in their pool. The top 4 teams

from each pool advanced in a single elimination format to determine places one to eight. The remaining 4 teams played a single elimination format designed to determine places nine through twelve.

National teams which qualified for the 7th Sitting Volleyball Championship came from 3 of 4 zones which are divided by WOVD, World Organisation Volleyball for Disabled. There were two teams, from Japan and

**TABLE 1**

Performances of the teams ranking from 1st to 4th place

PLACE	I.	II.	III.	IV.
team	IRI	FIN	BIH	NED
No. of games	8	8	8	8
set score	24 : 0	18 : 11	23 : 4	16 : 10
points score	361 : 142	366 : 301	375 : 250	332 : 227
playing time	403 min (6.72 h)	583 min (9.72 h)	492 min (8.20 h)	461 min (7.68 h)
SCORING SKILLS	won P S-O TATT	won P S-O TATT	won P S-O TATT	won P S-O TATT
attack	119- 166- 852	121- 253- 1276	112- 184- 1081	111- 195- 1002
block	94 - 31 - 434	76 - 36 - 597	73 - 38 - 522	41 - 24 - 395
serve	35 - 0 - 620	30 - 0 - 771	47 - 0 - 691	50 - 0 - 650
opponent error	113 - 62	139 - 122	143 - 104	130 - 98
TOTAL TEAM	361- 277- 1906	366-401- 2626	375-326-2294	332-317-2047

P: points scored

S-O: side - out

TATT: total attempts

**TABLE 2**

Performances of the teams ranking from 5th to 8th place

PLACE	V.	VI.	VII.	VIII.
team	GER	NOR	EGY	KZK
No. of games	8	8	7 *(8)	7 *(8)
set score	18 : 9	13 : 13	6 : 15	6 : 17
points score	335 : 279	328 : 295	228 : 269	191 : 354
playing time	539 min (8.98 h)	584 min (9.73 h)	435 min (7.25 h)	422 min (7.03 h)
SCORING SKILLS	won P S-O TATT	won P S-O TATT	won P S-O TATT	won P S-O TATT
attack	116- 258- 1169	109- 194- 1208	67 - 157 - 885	45 - 89 - 641
block	43 - 27 - 445	42 - 40 - 458	49 - 40 - 449	26 - 30 - 329
serve	36 - 0 - 719	70 - 0 - 667	22 - 0 - 524	30 - 0 - 421
opponent error	140 - 106	107 - 119	90 - 92	90 - 112
TOTAL TEAM	335-391-2333	328- 353- 2343	228- 289- 1858	191- 231- 1391

\*(8) EGY : KZK, 3:0, no game

**TABLE 3**

Performances of the teams ranking from 9th to 12th place

PLACE	IX.	X.	XI.	XII.
team	IRQ	SLO	JPN	AUS
No. of games	7	7	7	7
set score	12 : 13	7 : 15	3 : 18	0 : 21
points score	311 : 277	188 : 264	146 : 288	55 : 315
playing time	479 min (7.98 h)	349 min (5.82 h)	323 min (5.38 h)	223 min (3.72 h)
SCORING SKILLS	won P S-O TATT	won P S-O TATT	won P S-O TATT	won P S-O TATT
attack	88 - 137 - 1100	58 - 132 - 771	33 - 93 - 708	6 - 31 - 337
block	46 - 38 - 481	30 - 24 - 273	21 - 8 - 198	2 - 19 - 166
serve	21 - 0 - 605	27 - 0 - 436	30 - 0 - 358	10 - 0 - 117
opponent error	156 - 121	73 - 81	62 - 101	37 - 60
TOTAL TEAM	311- 296- 2186	188- 237- 1480	146- 202- 1264	55- 110- 680

the host of Sydney 2000 Paralympic Games, Australia, that were playing at the tournament on such high international level, for the first time. After a long absence from international scene Iraqi team qualified to come to the tournament. The total number of matches played at the Championship was 46. Teams therefore played 7 or 8 matches depending on their tournament ranking. Total set score varied from the winners' 24 : 0 to a score of 0 : 21 for the last placed team. Scoring points also varied. Among medal winners we have positive point score, gold medallist 361 : 142 (+219), silver medallist 366 : 301 (+65) and bronze medallist 375 : 250 (+125). The tournament point score was negative for the last three teams in the tournament, the 10th team reached 188 : 264 (-76), the 11th team reached 146 : 288 (-142) and 12th team scored 55 : 315 (-260). The longest playing time at the Championship was 584 min (9:73 h) for Norway for 8 matches. The last team at the tournament deviated from others mainly because of its inexperience and not yet having reached a competitive level for a top world event in sitting volleyball.

#### Scoring skills of the top sitting volleyball teams

The intention of this study is to find out the structure of scoring skills in elite sitting volleyball teams. The subject of survey was team performances in attack, block, serve and opponent error. Attack is a general term used to describe how the ball is played over the net. Spiking is the primary and most dynamic skill used to attack the ball and is usually the third contact in the three contact offence. The greatest difference, according to McGown (1994), between top international volleyball and the game that most of us teach is the velocity of the players as they are playing. At the top level, players hurl themselves around the court at sprint velocities. These players use techniques in which the momentum created by these high velocities is transferred to the ball during the attack. Blocking, like spiking, is a primary determinant of success. Good blocking involves timing and the ability to read the offensive hitter's intentions. In sitting volleyball every player, short or tall, can have an effective role as a blocker. Blocking an opponent's service is permitted in sitting volleyball. Experienced blockers can often turn the block into an attacking shot and possibly a winning point. Blocking is often the last skill to be perfected and is probably the most complex sitting volleyball skill. Besides putting the ball in play, the serve can be an effective way for a team to score points quickly. A good server can provide the momentum to boost his team to victory. The only measure of whether a serve is effective is whether it leads to the serving team scoring points. Errors are part of the top sitting volleyball as well. Stress contributes significantly to inconsistency in players' on-court performance. Attack error: players keep hitting the ball out of bounds or into the net. They seem to lack control of their bodies.

Blockers often have a hard time keeping their hands firm and angled properly. Players get frustrated when they cannot serve the ball into play consistently. The common causes of faults, which result in loss of service (side – out) or a point to the opposing team, are: the ball touches the ground, the ball does not cross the top of the net between the antennae, the ball hits antennae, the ball is played more than three times in succession by one team, the ball is held, the ball lands outside the boundary lines, a player touches the net or antennae, a player lifts his buttocks at the moment he hits the ball, positional fault, rotational fault, delayed substitution, interfering with the ball while in the opponents' half of the court, player makes an attacking stroke while the ball is in the opponents' court, or a player receives a misconduct penalty.

**TABLE 4**

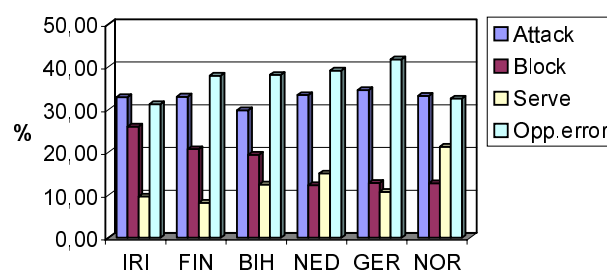
Scoring skills of the teams ranking from 1st to 6th place

team / w points	I. IRI / 361	II. FIN / 366	III. BIH / 375
ATTACK	119 32.96 %	121 33.06 %	112 29.87 %
BLOCK	94 26.04 %	76 20.77 %	73 19.47 %
SERVE	35 9.69 %	30 8.19 %	47 12.53 %
OPP. ERROR	113 31.30 %	139 37.98 %	143 38.13 %
team / w points	IV. NED / 332	V. GER / 335	VI. NOR / 328
ATTACK	111 33.43 %	116 34.63 %	109 33.23 %
BLOCK	41 12.35 %	43 12.84 %	42 12.80 %
SERVE	50 15.06 %	36 10.75 %	70 21.34 %
OPP. ERROR	130 39.16 %	140 41.79 %	107 32.62 %

w points: total winning points score

**Fig. 1**

Graphic presentation of the scoring skills of the teams ranking from 1st to 6th place



Scoring skills including attack, block, serve and opponent error show us the composition of those elements vital for sitting volleyball success at the top level. All the first six teams have a lot of experience and were medal winners at the biggest international championships like Continental, World and Paralympic, except for Bosnia and Herzegovina as a new country. However, Bosnia and Herzegovina have a sitting volleyball tradition from the former Yugoslavia, whose teams were on the scene from the very beginning. Percentage of attacks in the total winning points shows no big difference among the six best teams, the lowest score, 29.87 % attained by Bosnia and Herzegovina and the highest 34.63 % by Germany. The World Champions, Iran, have 32.96 %. Netherlands had the lowest percentage of point scoring blocks (12.35%) and Iran the highest (26.04%). Norway had the highest percentage of serves as a direct scoring element (21.34%) with Finland having the lowest among the top 6. Points from opponent error was 31.30 %, the lowest, to Iran and the highest, 41.79 %, to Germany. Iran shows the highest percentage among the top six teams in gaining points by blocking and also the lowest score in gaining points from opponent error. There seems to be an important correlation between active and passive points collection. Active and dynamic approach to attacking, blocking and serving is the key to success.

**TABLE 5**

Scoring skills of the teams ranking from 7th to 12th place

team / w points	VII. EGY / 228	VIII. KZK/ 191	IX. IRQ / 311
ATTACK	67 29.39 %	45 23.56 %	88 28.29 %
BLOCK	49 21.49 %	26 13.61 %	46 14.79 %
SERVE	22 9.65 %	30 15.71 %	21 6.75 %
OPP. ERROR	90 39.47 %	90 47.12 %	156 50.16 %
team / w points	X. SLO / 188	XI. JPN / 146	XII. AUS / 55
ATTACK	58 30.85 %	33 22.60 %	6 10.91 %
BLOCK	30 15.96 %	21 14.38 %	2 3.64 %
SERVE	27 14.36 %	30 20.55 %	10 18.18 %
OPP. ERROR	73 38.83 %	62 42.47 %	37 67.27 %

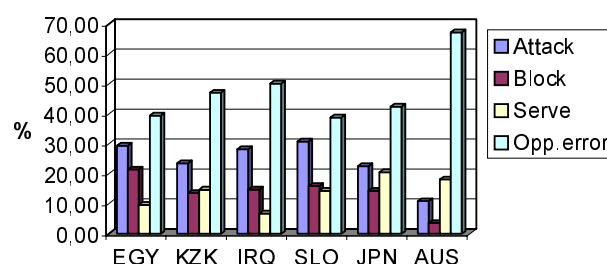
w points: total winning points score

The table of scoring skills among teams ranking from 7th to 12th clearly shows a surprisingly low level for the last team. An inexperienced team, struggling with the basic elements of sitting volleyball, used the privilege of wild card invitation. The reason for this

team's attendance was that it will be the host of Sydney 2000 Paralympic games. Getting points through passive participation is therefore a surprise only in the first moment. To be good means to be active in the mastering of sitting volleyball's technical, tactical and psychological elements. Slovenia got high scores in this group for attack skills, with 30.85 %, Egypt for blocking points with 21.49 % and Japan for serving points with 20.55 % in winning points structure.

**Fig. 2**

Graphic presentation of the scoring skills of the teams ranking from 7th to 12th place



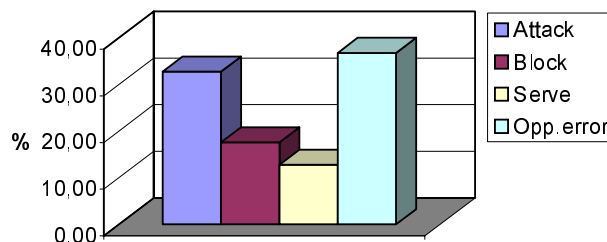
**TABLE 6**

Scoring skills of the “winning group”, teams ranking from 1st to 6th place

	teams 1-6 total winning pt. score: 2097	teams 1-6 total winning pt. score: 2097	teams 1-6 total winning pt. score: 2097	teams 1-6 total winning pt. score: 2097
attack winning points	688			
	32.81 %			
block winning points		339		
		17.60 %		
serve winning points			268	
			12.78 %	
opponent error				772
				36.81 %

**Fig. 3**

Graphic presentation of the scoring skills of the “winning group”, teams ranking from 1st to 6th place



This presentation of the scoring skills of the “winning group”, as we may call teams ranking from first to sixth place, shows us the order of individual scoring skills: attack 32.81 %, block 17.60 % and serve 12.78 %

as active winning points and opponent error the highest at 36.81 %, as a passive way of collecting points. Good team can force weaker opponent to make an error in play.

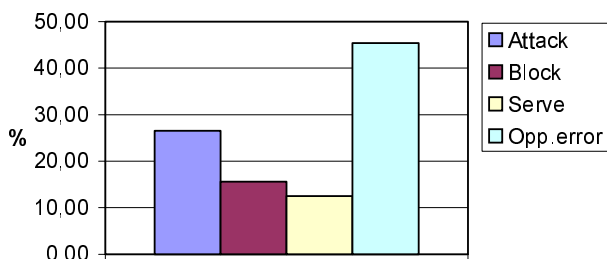
**TABLE 7**

Scoring skills of the “losing group”, teams ranking from 7th to 12th place

	teams 7–12 total winning pt. score: 1119	teams 7–12 total winning pt. score: 1119	teams 7–12 total winning pt. score: 1119	teams 7–12 total winning pt. score: 1119
attack winning points	297			
	26.54 %			
block winning points		174		
		15.54 %		
serve winning points			140	
			12.51 %	
opponent error				508
				45.40 %

**Fig. 4**

Graphic presentation of the scoring skills of the “losing group”, teams ranking from 7th to 12th place



The so called “losing group”, teams ranking from the seventh to twelfth place have the same scoring points structure as the “winning group”, but with obviously lower percentage in active scoring in attack actions, blocking and serving, while opponents error score is higher than in the other group with 45.40 % to 36.81 % in favor of lower ranking teams. Besides other factors lower ranking teams play more games with each others which also increase points from opponent error. To avoid an error, players should use errors to prompt themselves on what to do in the next play. Confidence is built through success in practices and competition and recognition of those successes. The importance of establishing a positive environment is crucial for all, especially for those teams wanting to learn from mistakes and make progress.

#### Model of scoring skills of top sitting volleyball teams

An analysis of both groups, “winning and losing”, shows us the position of an individual scoring skill in

the whole scoring skills structure. Attack winning points: “winning group” 32.81 %, “losing group” 26.54 %, block winning points: “winning group” 17.60 %, “losing group” 15.54 %, serve winning points: “winning group” 12.78 %, “losing group” 12.51 %, opponent error points: “winning group” 36.81 %, “losing group” 45.40 %. The established ranking order of collecting winning points: opponent error (rank 1), attack (rank 2), block (rank 3) and serve (rank 4) represents a model of skills of top sitting volleyball teams. The high percentage of opponent error shows the complexity of the sitting volleyball game, in which besides scoring skills, the playing system has an important role as well as the level of tournament, importance of the game and how serious the opponent players’ approach is. Opponent error varied from four contacts to positional fault, rotational fault, to player misconduct penalty. Active approach to attacking, blocking and serving is, we believe, the key to success. As a reminder, in sitting volleyball the players in the attacking area are allowed to block the serve from the opposite team. The quality gap between first and last ranking teams at the Championship is evident in scoring skills structure, Iran (1st place): attack (32.96%), block (26.04%), serve (9.69%), and opponent error (31.30%), Australia (12th place): attack (10.91%), block (3.64%), serve (18.18%) and opponent error (67.27%). Rookie Australian team, invited (not qualified) as the host of Sydney 2000 Paralympic games, should start to gain their international experience at a lower level than World Championship competition. According to WOVD rules, in sitting volleyball, athletes with minimal disability are eligible for official competition. Minimal disability is required to avoid a situation where able bodied athletes will take part in world championships for the disabled. Minimal disability classification covers four areas: amputees (minimal disability examples: amputation of the first two fingers of both hands, amputation in Lisfranc joint on one foot), “les outres” (minimal disability examples: shortening on one upper limb of more than 33 %, motor paresis or total paralysis of upper limb, joint mobility specific problems), cerebral palsy (minimal disability examples: hemiplegics, monoplegics, minimal athetoids) and special cases (examples: severe circulation defect of lower limb(s), instability forward / backward of 1.5 cm the knee, luxation of humeroscapular joint). A curiosity of the competition were teams from Iran (1st place), Bosnia and Herzegovina (3rd place) and Iraq (9th place) with complete amputee teams. Effects of the wars and especially land mines need no further explanation. The other teams had mixed ability players, but also a clear majority of amputees. Sitting volleyball appears to be the most suitable ball game for amputees. On the other hand, the team from Egypt (7th place) consisted exclusively of polio players, presumably because of their strong national sport organisation.

## CONCLUSION

The attempt to find out the structure of scoring skills in top sitting volleyball teams by analysing the points obtained through attack, block, serve and opponent error, leads us to the conclusion that all these sitting volleyball elements are similarly distributed among all participating national teams. Differences in the quality of teams' performances did not change the overall distribution of points, despite the enormous gap between some teams. Results show that the scoring skills in top sitting volleyball teams were as follows: teams ranking from 1st to 6th place: attack 32.81 %, block 17.60 %, serve 12.78 % and opponent error 36.81 %, teams ranking from 7th to 12th place: attack 26.54 %, block 15.54 %, serve 12.51 %, opponent error 45.40 %. Gathering information on volleyball for the disabled at the top level is the first step towards monitoring and analysing this specific game in detail. From now on, with an established scoring point structure for sitting volleyball, opponent error (rank 1), attack (rank 2), block (rank 3), serve (rank 4), doors are open to further investigation including comparison with top level able bodied volleyball, which is always a big challenge and inspiration. We are aware that Statistical Match Analysis (SMA) cannot completely reflect the entire performance of a team. There are so many factors of performance that cannot be grasped or evaluated by SMA, for instance, actions without the ball are difficult to include in SMA. The results of actions are dependent on opponents and team mates, psychological factors, etc. We believe that this survey means a step forward to better understanding sitting volleyball and could help coaches, players, teachers, officials and others to make their volleyball orientated efforts more efficient. Objective measurement, evaluation, analysis and interpretation of player and team performance are indispensable in scientific training and development of top class teams in modern sitting volleyball. This scoring point structure was established for the first time in top level international sitting volleyball competition.

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## WIE DIE BESTEN INTERNATIONALEN MANNschaften IM SITTING VOLLEYBALL DIE ZUM ERWERB VON PUNKTERGEBNISSEN NOTWENDIGEN FERTIGKEITEN REALISIEREN (Zusammenfassung des englischen Textes)

Diese Übersicht ist ein Versuch eines Aufbaus einer Struktur von Fertigkeiten, die zum Erwerb von Punktergebnissen im Sitting Volleyball nötig sind. Die Stichprobe umfaßte die 12 besten internationalen Mannschaften, die an der Sitting Volleyball-Weltmeisterschaft in Teheran 1998 teilnahmen. Bei der Bewertung des Wettbewerbs bedienten wir uns des Informationssystems Volleyball Information System (VIS), Version 1.50 und Form P-2, P-4. Die statistische Analyse des Wettkampfs (SMA) wurde für die Präsentation der Leistungen der einzelnen Mannschaften und ihrer Realisierung der einzelnen, für den Gewinn eines Punktes notwendigen Fertigkeiten verwendet: Sturm, Block, Service und die Ausnutzung des Fehlers des Gegenspielers. Die Ergebnisse dieser Studie ermöglichen den Spielern, Trainern, leitenden Angestellten und allen, die sich für das Sitting Volleyball interessieren, sich mit dieser Sportart für Körperbehinderte näher vertraut zu machen.

*Schlüsselwörter: Wettbewerbssport, Sitting Volleyball, zum Erwerb von Punktergebnissen notwendige Fertigkeiten, Körperbehinderte.*

## PŘÍLEŽITOSTI KE SKÓROVÁNÍ A SCHOPNOST JEJICH VYUŽITÍ U VRCHOLOVÝCH MEZINÁRODNÍCH DRUŽSTEV V SITTING VOLEJBALU MUŽŮ (Souhrn anglického textu)

Tento přehled je pokusem o vybudování struktury v dovednostech potřebných ke skórování v sitting volejbalu. Namátkový průzkum zahrnoval 12 nejlepších mezinárodních družstev, která se zúčastnila Mistrovství

světa v sitting volejbalu mužů v Teheránu v roce 1998. K hodnocení soutěže jsme použili informační systém Volleyball Information System (VIS), verzi 1.50 a formy P-2, P-4. Statistická analýza zápasu (SMA) byla užitá k prezentaci výkonů jednotlivých mužstev a jejich využití jednotlivých příležitostí ke skórování: útoku, bloku, podání a využití protihráčovy chyby. Výsledky

této studie umožní hráčům, trenérům, vedoucím pracovníkům a všem, kdo se zajímají o sitting volejbal, seznámit se podrobněji s tímto sportem pro tělesně postižené.

*Klíčová slova: soutěživé sporty, sitting volejbal, schopnost skórovat, tělesně postižení.*