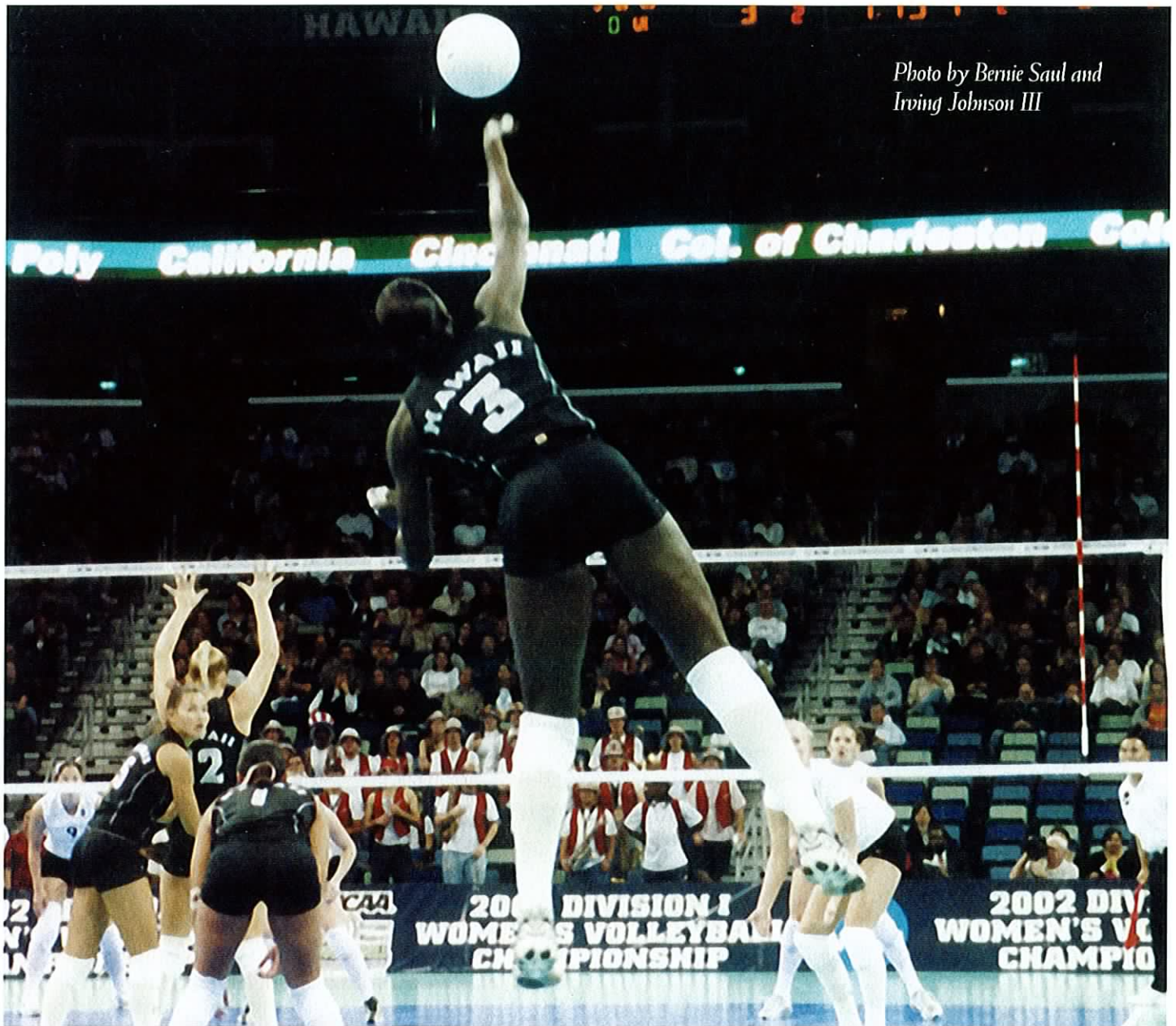


# Thinking Critically About

By Paul Arrington, M.D.



*Photo by Bernie Saul and Irving Johnson III*

There are many factors a coach must take into account when developing a serving strategy for a volleyball team. Some of the most obvious of these are the skill of the server and the skill of the opponent's serve receive offense. Other factors include the blocking and defensive ability of the team; the presence of a weak or a strong passer in the opponent's serve receive formation, as well as the team's serve receive ability.

As offenses become more and more dominating, one must develop a strategy that takes into account the

risk of the serve versus the difficulty created for the serve receiving team. In general, it is felt that the more difficult the serve is to receive, the more risky it is for the server.

Obviously, for a young 12-and-under team, the strategy is as simple as "getting the ball over the net." At more advanced levels, it may be "picking" on the opponent's worst passer or forcing their good hitter to pass short serves; or other placement considerations to take him/her out of position to hit effectively, as well as other tactics designed to slow down the

# Point Serving Strategy

offense of the receiving team.

An ace resulting from a powerful jump serve is very exciting, but is it more effective than other types of serves? In the pre-rally scored days, serving could and should be very aggressive, because a serving error cost the team only a side-out and not a point.

Additionally, if the team was good on serve receive, there was no real impact. By serving aggressively, points could be scored. Now with rally scoring, that wisdom is questionable; however, it seems as though serving may be even more aggressive now than in the pre-rally scored era.

Questions arise. Which type of serve is the best? What roles do service velocity and accurate service placement play? These are questions we need to evaluate critically to design a strategy based on facts rather than assumptions.

## Type of Serve

One of the first decisions is which type of serve is the best. There are several possible service styles from which to choose. The most commonly used serves today are the topspin jump serve, the jump floater serve and the floater serve. Which of these service types is chosen will depend upon the skill level of the athletes and how effectively they can perform each of these serves.

To evaluate the effectiveness of these three different styles of serve, five matches from the second round through the finals of the 2004 NCAA Division I Women's Volleyball Championship were evaluated. All told, 922 serves were analyzed. The serves were divided into jump (top spin), jump float and floater serves. The number of points, side-outs, aces and errors were recorded for each. From this data, the following information (Table 1) was obtained:

	JUMP	JUMP FLOAT	FLOAT
Total serves	179	247	496
Side-outs	117	149	302
Errors	13	15	39
Aces	1	8	10

Table 1

Using these numbers above, a number of calculations were done to help examine the effectiveness of each type of serve. These included:

1. Serve effectiveness per rotation (SE):

$$\# \text{ serves} - 2 \times \# \text{ rotations} / \# \text{ rotations}$$

This gives a value from negative 1 to infinity.

Negative 1 is the worst possible; 0 at the NCAA Division I level is very good; any positive number is outstanding.

2. Serve consistency (SC):

$$\text{serves played by SR team} / \text{total serves}$$

3. Aces per serve (A/S): Aces/Serves

4. Errors per serve (E/S): Errors/serves

5. Points per serve rotation (P/R):

$$\text{Points from serve} / \text{side outs}$$

The results of these calculations are seen in Table 2.

	JUMP	JUMP FLOAT	FLOAT
Serve effectiveness	-0.47	-0.34	-0.35
Serve consistency	92.7%	93.9%	92.1%
Errors per serve	0.11	0.06	0.13
Aces per serve	0.68	0.54	0.33
Points per rotation	0.59	0.66	0.64

Table 2

From this information, which applies only to the highest level of NCAA Division I women's volleyball, the most effective serve is the jump float, with the floater serve being the next best option.

The jump serve is very interesting. It is of equal consistency with the other types of serves in terms of being "in"; however, although it leads in aces per serve and is lower than the float serve in errors per serve, somewhat surprisingly it is the least effective in scoring points if it is not an ace. One might surmise this is because it is actually a fairly easy serve to pass if it is not exceptionally hard because it moves in a predictable trajectory. At this level, the jump server is only 77 percent as likely to score as a standard float server and only 75 percent as likely as a jump float server.

Each serve type needs to be evaluated at any particular level of play. The figures above are, again, only for high-level NCAA Division I women.

Overall, the jump serve is not as effective as the jump float or the floater serve.



SERVE # IN ROTATION	TYPE OF SERVE	POINTS	SIDE-OUTS	SERVICE ERRORS	TOTAL SERVES
First	Jump	50	52	12	114
	Jump Float	62	90	11	153
	Floater	117	171	39	329
Second	Jump	9	37	3	49
	Jump Float	20	27	2	49
	Floater	41	54	8	103
Third & Higher	Jump	3	8	0	11
	Jump Float	26	19	3	47
	Floater	28	36	2	66

Table 3

second serve and third or higher serves in a given service rotation. The number of points, side outs and service errors were recorded for each. The results are seen below in Table 3:

From this data, we can easily calculate the service error percentage and the chances for scoring for each service type for every number of serves in a service rotation sequence. These are seen below in Table 4:

SERVE # IN ROTATION	TYPE OF SERVE	CHANCE OF SCORING	% OF SERVICE ERRORS
First	Jump	44% (50/114)	10% (12/114)
	Jump Float	34% (62/153)	7% (11/153)
	Floater	36% (117/327)	12% (39/327)
Second	Jump	18% (9/49)	6% (3/49)
	Jump Float	41% (20/49)	4% (2/49)
	Floater	40% (41/103)	8% (8/103)
Third & Higher	Jump	27% (3/11)	0% (0/11)
	Jump Float	55% (26/47)	4% (2/47)
	Floater	42% (28/66)	3% (2/66)

Table 4

By further evaluating the raw data, we can determine the number of points scored as single points and the number of points scored in runs and the length of the run for each type of serve. This information is seen in Table 5 below:

SERVE # IN ROTATION	TYPE OF SERVE	CHANCE OF SCORING	% OF SERVICE ERRORS
First	Jump	44% (50/114)	10% (12/114)
	Jump Float	34% (62/153)	7% (11/153)
	Floater	36% (117/327)	12% (39/327)
Second	Jump	18% (9/49)	6% (3/49)
	Jump Float	41% (20/49)	4% (2/49)
	Floater	40% (41/103)	8% (8/103)
Third & Higher	Jump	27% (3/11)	0% (0/11)
	Jump Float	55% (26/47)	4% (2/47)
	Floater	42% (28/66)	3% (2/66)

Table 5

From the above information, we can calculate the percentage of points scored as single points and in runs of two or more points for each of the service types. Please Table 6 on page 14.

However, this is another indication that we must get away from looking at aces and errors to determine the effectiveness of a server.

Despite the fact that overall, the jump serve is less effective than either the jump float or the floater serve, it may have some value. To further examine its role, the serves from the NCAA tournament were reevaluated, looking at the outcome of the first serve,

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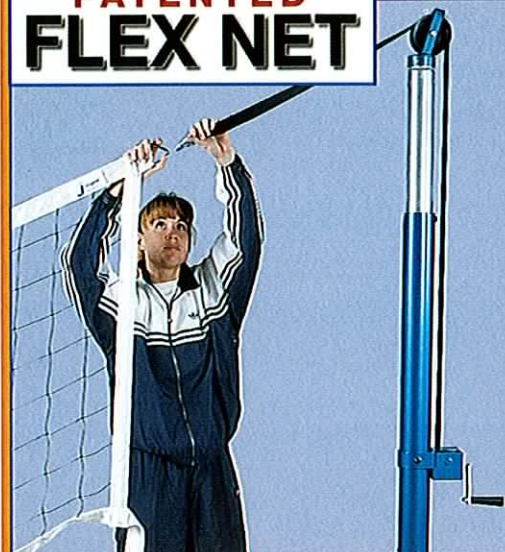


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	Jump Float	55% (28/47)	4% (2/47)
	Floater	42% (28/66)	3% (2/66)

Table 6

As was seen in Tables 1 and 2, overall, the jump serve is not as effective as the jump float or the floater serve. However, since the servers scored 44 percent of the time on their first serve with the jump serve, it is the best serve for the first serve of a server's rotation. Subsequent serves are more effective as either the jump float or the floater serve. In fact, if points are needed in "bunches," a server is very ill-advised to persist in serving jump serves since the second jump serve scores a meager 18 percent of the time, compared to 41 and 40

percent for the jump float and floater serves.

The question remains unanswered as to whether alternating jump serves with jump float and/or floaters serves would be even more effective. (Since no one at this time is doing this, there is no data for evaluation.)

Part II of this article, which will concentrate on service velocity and serve placement, will appear in the March/April 2006 issue of *Coaching Volleyball*.



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