

Training Design: How to Create Effective Training for High- Performance Player Development

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Quality of reps

- Principles of motor learning
 - Transfer
 - Specificity vs generality
 - Whole vs part
 - Random vs blocked practice

Quantity of reps

- Increasing players' opportunities to respond
 - Skill warm-up
 - Tutoring
 - Small groups, multiple courts

Transfer

- How much of what you do in practice shows up in games?
 - “There has been a great deal of research conducted concerning transfer from **one variation of a task to another variation of the same task** [...] One is forced to the conclusion that the amount of motor transfer is quite small.” (Schmidt, 1975)
- If your practices have a greater percentage of transfer to actual game play each day than your opponents, it won't be long until your team is much better than theirs.
- More transfer = more effective practice = faster skill development
→ how can we increase the amount of transfer happening?

Specificity

- Abilities are specific to the task or activity
 - Perception-action coupling
 - Reacting to appropriate stimuli
Examples:
 - Defender reading a live hitter vs a hitter on a box or on the floor
 - Setter reading a receiver vs a coach's toss
 - Receiver reading a live server vs a serving machine
 - “[...] information and movement are tightly coupled and as a result specificity of training is required in order to get meaningful learning effects.” (Savelsbergh, Van Der Kamp, 2000)
- More appropriate stimuli + more specific practice → more transfer

Whole vs part

- Practicing the whole skill vs only a part of a skill
 - Examples:
 - Whole spike (including approach, jump, swing, landing) vs jump arm swing
 - Whole spike vs hitting a stationary ball
 - “In 30 whole-part studies reviewed, not one favored teaching methods that used the part or progressive part methods of instruction. In the majority of studies, some variation of the whole method was associated with superior learning.” (Nixon & Locke, 1973)
- More “whole training” → more transfer

Random vs Blocked practice

- Blocked = same skill, same action, many times in a row
 - Pros: more reps at a certain skill, better for performance in the moment
 - Cons: almost never occurs like that in a game, less retention
- Random = multiple skills in “random” order
 - Pro: very game-like, more retention
 - Con: much lower number of reps

Random vs Blocked practice

- “Blocked practice is better for retention (i.e., for learning) only for beginners. The findings seem to suggest that Blocked practice is effective until the learner can “just (barely) do it” and that Random practice is always more beneficial thereafter.” (Schmidt)
- “Imagine a tennis player who misses a volley at the net. The play will go on until sometime later a similar situation emerges unexpectedly with a similar problem for the player. Contrast this type of learning with a session with a tennis coach. The coach would set up situations where the player would stand at the net and be ready to execute the volley. With mastery of the easy volleys, the coach can increase the difficulty of the shots and eventually embed volley shots into the rallies. It’s easy to see that a few hours of this type of training would improve the player’s volley more than 10s or 100s of hours of regular tennis play.” (K. Anders Ericsson)

Summary – quality of reps

- “Anything less than a game situation, unless very well planned, has the possibility of introducing artificial situations and complete transfer to the game situation might not occur. When drills are developed, the teacher should carefully consider the way the skills are performed in a game to determine that the drills are as close to the game as possible.” (Marteniuk, 1976)

Opportunities to respond

- The number of times a player practices a skill (at an appropriate level of difficulty) is the best predictor of their improvement. So coaches should do everything they can to make sure that the number of practice trials, or the number of opportunities to respond, is maximized.
- Skill warm-up
 - Include skill work in warm-up routines
- Tutoring
 - 1-3 players working on a specific skill. Fewer players = more reps.
- Small groups, multiple courts
- Use court-time for volleyball (e.g. warm-up in hallway)

Our practice structure

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

10-15' physical warm-up, individual needs

10' 1v1 / 2v2 short court competition

15-20' skill tutoring

5-10' back court exchange (= attack/defense drill)

10-15' blocked technical drill

20-25' 6v6 game

10-15' blocked technical drill

20-30' 6v6 game

} warm-up

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (1/8)

Physical warm-up, individual needs, maybe team input by SC 15'

Include:

The image shows a chalkboard with handwritten notes organized into three columns:

- S entries**
 - always start w/ left foot in front.
 - P1: R-L-R-shuffle LR
 - P5: turn to see the ball
R-L-R-L
 - P4: turn clockwise
R-L-R-L
- Blocking patterns**
 - X3
 - X2
 - Q3
 - X5

} 3x each both ways
- Transition fw patterns**
 - LS: 4+4
 - M: 3+3 / 4+3 (circle)
 - RS: 3+n4

Main ideas:

- Use skills you need in the game (footwork patterns) to warm-up
- Prepare mentally for skill execution (being precise with simple things)

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

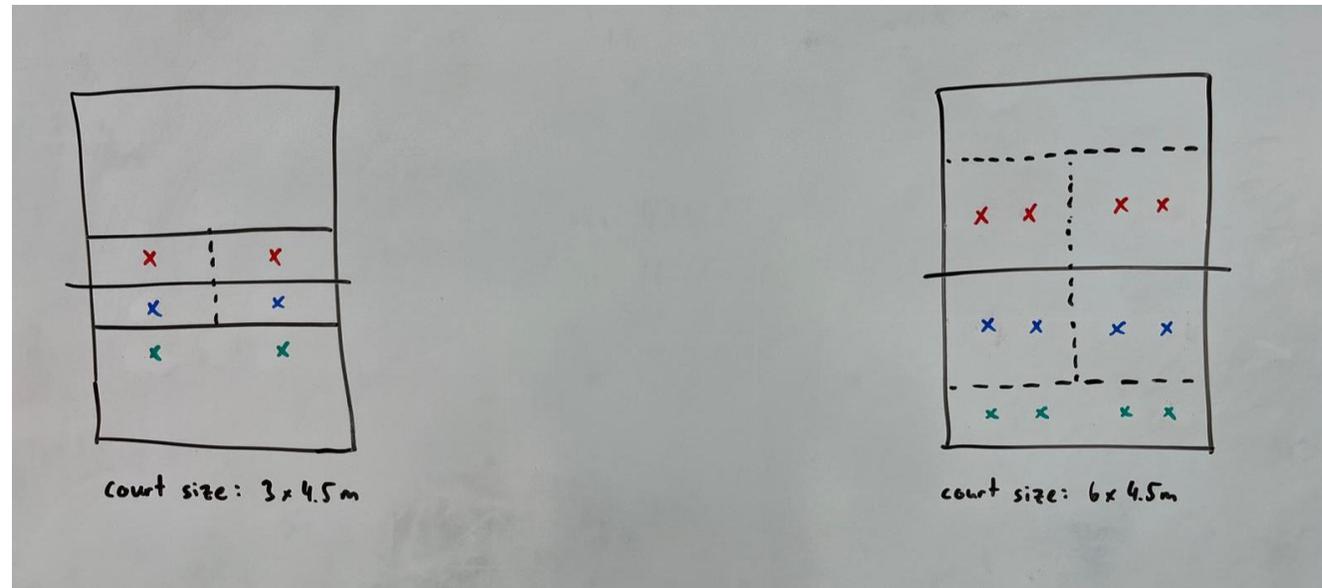
INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (2/8)

1v1 / 2v2 short court competition

10'



Main ideas:

- Get competitive juices flowing

Practice plan example (3/8)

PRINCIPLES

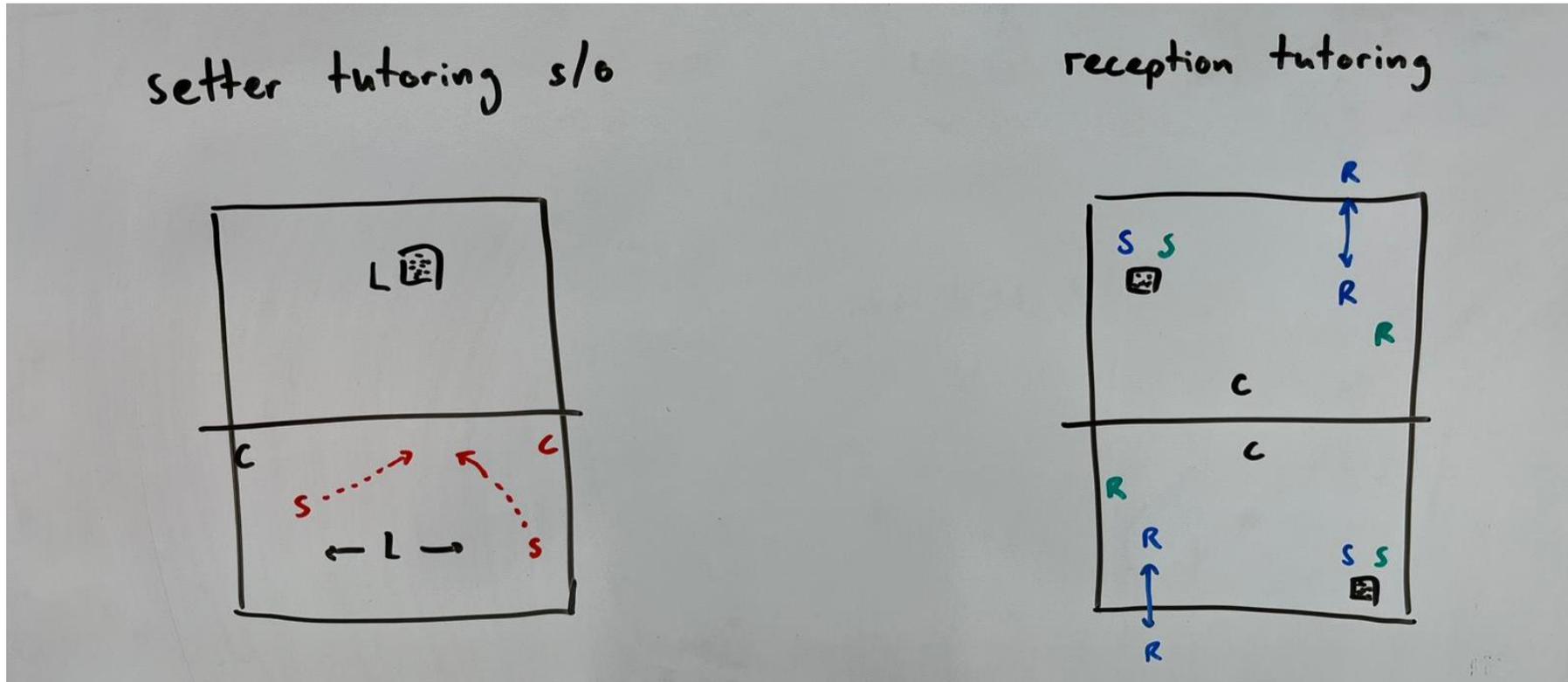
- Specificity
- Whole vs part
- Random vs Blocked

INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Skill tutoring (1/3)

15-20' total



PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

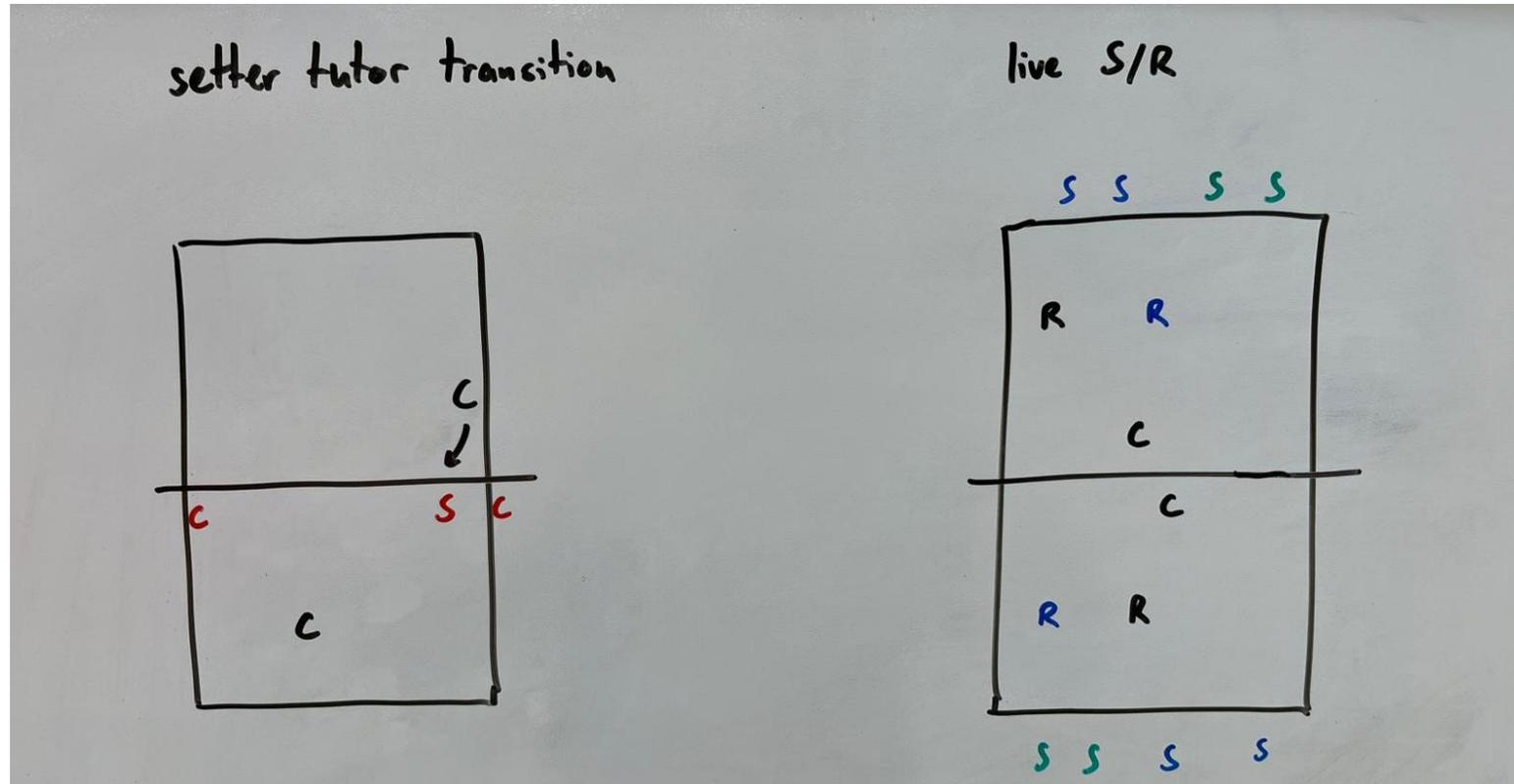
INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (3/8ff)

Skill tutoring (2/3)

15-20' total



PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

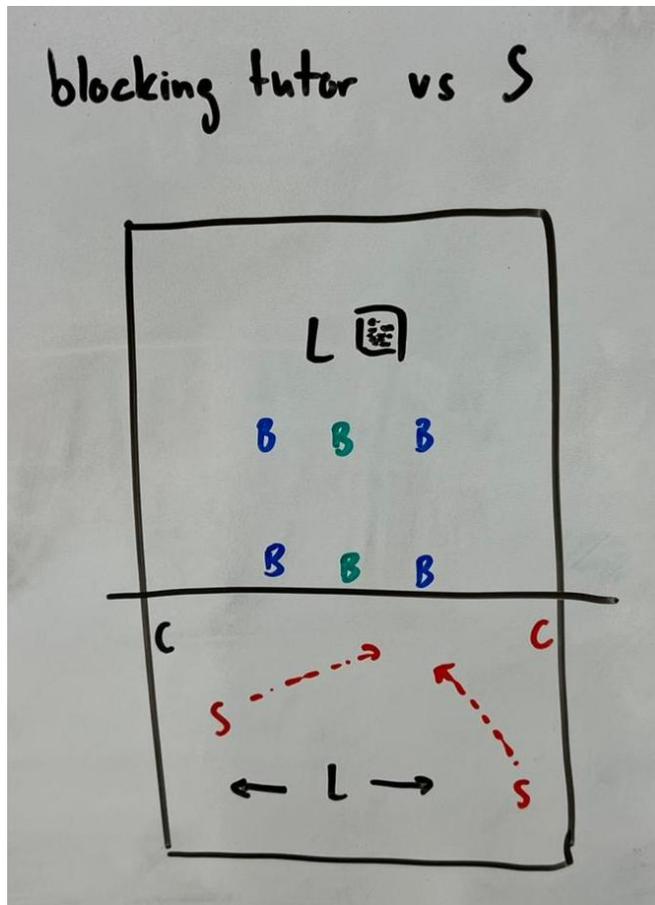
INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (3/8ff)

Skill tutoring (3/3)

15-20' total



Main idea:

Get more reps at a specific skill and a specific situation in a short time.

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

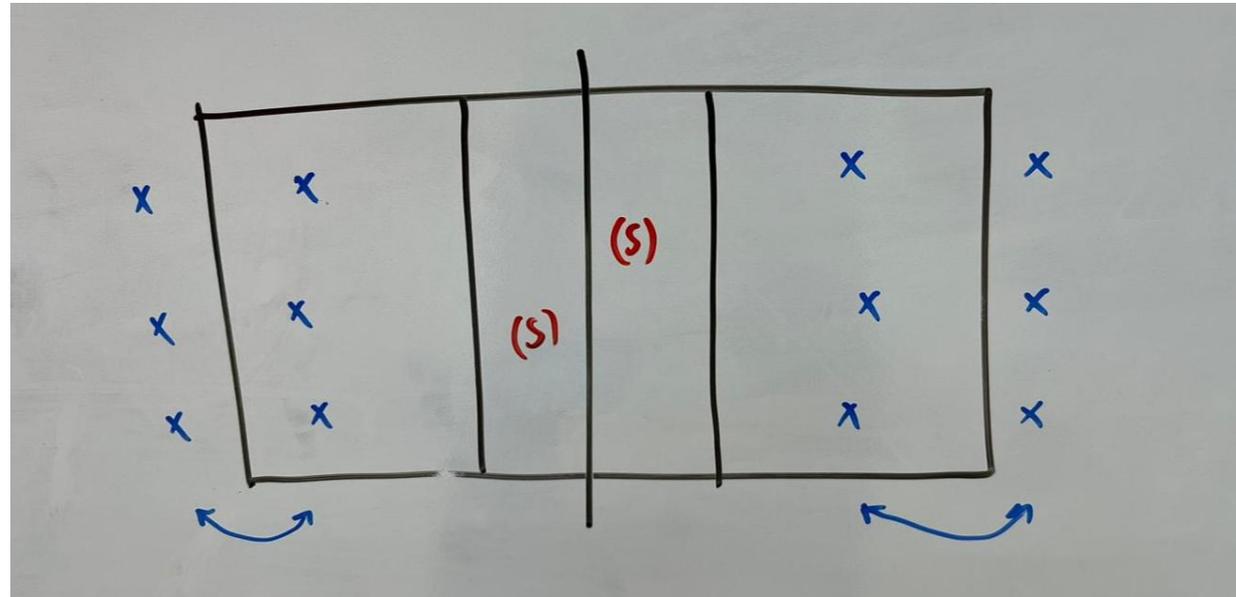
INCREASE OPPORT. TO RESPOND

- Skill warm-up
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- Small groups / multiple courts

Practice plan example (4/8)

Back court exchange

5-10'



Main idea:

- Get ready to attack and defend at game speed and intensity.

Practice plan example (5/8)

PRINCIPLES

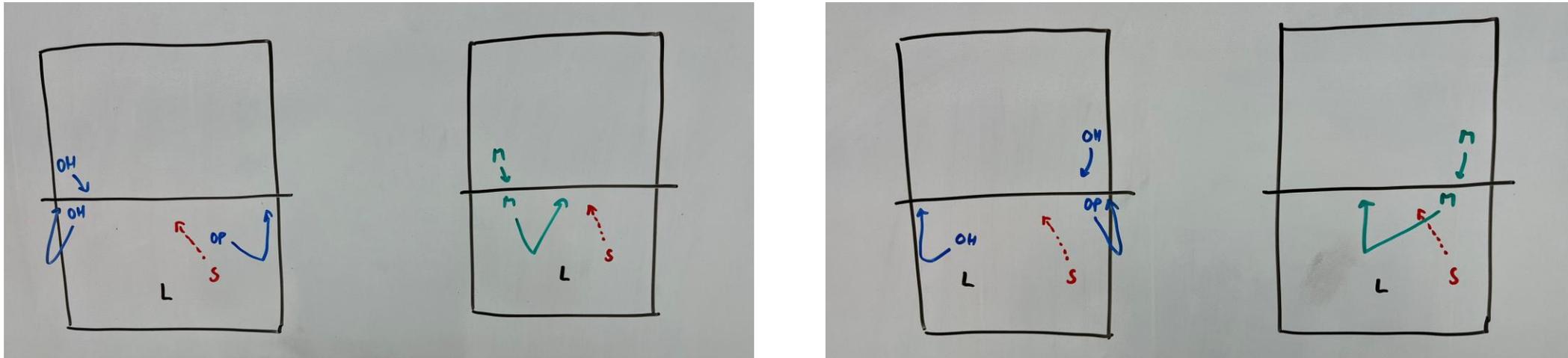
- Specificity
- Whole vs part
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INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Blocked technical drill, transition attack

10-15'



Main idea:

Practice a skill we want to improve in a game-like manner (correct stimuli), while also getting more reps at it than in a normal game setting.

PRINCIPLES

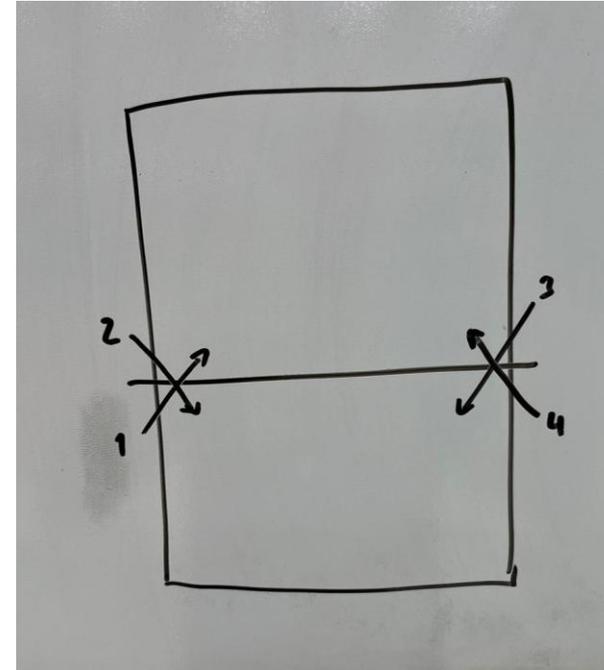
- Specificity
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INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (6/8)

6v6 game, transition wash



20-25'

Main idea:

Include the practiced skills into a 6v6 game variation to help increase the transfer into 6v6 and ultimately the game.

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (7/8)

Blocked technical drill, live Serve-Receive

10-15'

Main idea:

We always do live Serve-Receive in every practice, as it is one of the most important bases playing the game successfully.

PRINCIPLES

- Specificity
- Whole vs part
- Random vs Blocked

INCREASE OPPORT. TO RESPOND

- Skill warm-up
- Tutoring
- Small groups / multiple courts

Practice plan example (8/8)

6v6 game, transition wash variation

20-25'

Main idea:

Include the practiced skills into a 6v6 game variation to help increase the transfer into 6v6 and ultimately the game.