

Appendix 4. Examples of exercises within in each physical perspective and examples of psychological aspects to integrate from interdisciplinary workshop.

Main focus	Example of exercises	Exercise description	Examples of variation and/or progression	Examples of psychological aspects to integrate
Movement technique LE	<p>Basic exercise: Three-step and jump shot in pairs or groups</p> <p>Execution: Player(s) performs a jump shot, another player observes landing (on one or two legs, and HKF-A) and gives feedback</p>	<ul style="list-style-type: none"> • Visual and written information for coaches and players to learn about correct movement technique • External focus instructions for coaches to choose from • Information for coaches to learn how to improve players' feelings of autonomy, competence, and relatedness within a given exercise/practice situation 	<ul style="list-style-type: none"> • Without ball • PL1 throws ball to PL2 during jump shot • While jumping, PL1 gets and catches ball from PL2 • PL1 makes another vertical jump after first approach, gets and catches ball from PL2 in second jump • 3 players: PL1 leads exercise, PL2 and PL3 execute. PL2 and PL3 stand with back to PL1. PL1 gives signal left or right, PL2 and PL3 both jump 180-degree rotation and land correctly (feedback by PL1). PL1 throws ball to the PL that lands correctly, or either PL2 or PL3 if both players land correctly, who approaches the goal. Vary exercise by letting player who does not get the ball act as defence against player with ball 	<p>Feedback: Athletes switch roles between practicing and observing, where the observer gives feedback to the one who practices. Underline positive feedback, on what is working and why (avoid feedback on what is wrong) and focus on the intended movement effect (external focus of attention).</p> <p>Competition: Competition element on movement technique. For example, a goal (performance) only counts when the athlete has landed with good movement technique. A coach can include a gaming element where he/she gives duo's the assignment to score within a certain time limit.</p> <p>External focus of attention: The player is instructed to focus on ball, defence, and goal. The observer focuses on and provides feedback on landing technique.</p>

Movement technique UE	<ul style="list-style-type: none"> • Throw backwards, sideways to train back muscles, external rotators and unload front muscles • External rotation with ball: drop-and-catch • External rotation with ball or rubber band: pair exercise • Weight training (15–17 years): Sitting pull-down; “pully” machine; Sitting rowing 	<p>Before warm-up (while waiting in the hallway), during warm-up</p> <p>During warm-up and/or integrated in skill training</p> <p>At the gym</p>		<p><i>Players:</i> Be present and mindful when performing exercises</p> <p><i>Coaches:</i> Create an open and non-judgmental environment. Build security and autonomy in the group using circulating leadership</p>
Muscle strength			<p>Applies to all exercises:</p> <ul style="list-style-type: none"> • Harder, more, accuracy • Rubber band • Medicine ball/heavy handball • Train with others in a coordinated fashion • Higher/harder throws • Precisions in passes in shots • Faster, more balls 	<ul style="list-style-type: none"> • Meaningful, more fun than physical exercise alone • Fun, skill development • Competition • Cooperation
Core	Inner core with throw	<p>Player lies on back with bent knees and feet lifted off the floor. Activate inner core muscles by pressing lower back into the ground throughout the exercise. While pressing the back down, pass the ball to partner who is in a standing position</p>	<ul style="list-style-type: none"> • Straight legs (feet still lifted off the floor), longer passes or precision • Add wrist training, by throwing with wrist only (not elbow) • Pass with rotation: Player sits down on the floor with legs bent, (think as if sitting inside a clock, with legs at 10 o'clock and shooting arm in a 	

			raised position). From here, rotate upper body towards the floor (approx. 3 o'clock), and pass the ball to partner. Then opposite direction	
	Slow-motion movement – defence training without ball	Train core muscles needed during defence. Slow-motion to emphasize focus on rotation technique in exercise.	Change speed of movement (both from the defence and the attacker)	
<i>Shoulder</i>	Activate scapula (education purpose)	Depress shoulders and retract shoulder blades		
	Throw for posterior part of shoulder 1. Backwards 2. Overhead 3. Behind back	Focus on activating posterior part of shoulder while throwing	Progression: increase distance between players (= longer throw)	
<i>Legs</i>	Slow-motion movement – cutting technique	Handball-specific cutting movements (side-hops) in slow-motion. Emphasize strength, balance, and correct body movement/position	Progression: push (by partner), resistance band around pelvis (partner pulls in different directions), or longer steps	<ul style="list-style-type: none"> • Understanding of the movement • Slowing the movement down to facilitate task focus and mindful muscle activation
All-round training for physical fitness	Warm-up dance Incorporate typical handball movements in dance (players in circle), e.g., <ul style="list-style-type: none"> • Side-cutting movements • Squats with ball over the head • Parallel jumps left/right • Jumps on one leg left/right • The dragon • Tackling shoulder to shoulder on one foot • Roof pass on one foot 	A team can choose a song and change song during a season	<ul style="list-style-type: none"> • Obstacle course 	Check-in before start

LE=lower extremity; UE=upper extremity; PL=player; HKF-A=Hip-knee-foot alignment