Appendix A: Tests

Illinois Modified Agility Test using FitLight: This is a formation where people form a rectangle and a team does many quick turns in such a shape in figure 2. It assess the reaction time, quickness and flexibility of the participant and enable the participant to navigate through the course within the shortest time possible. This is when the participant has to run to the first disk of the course and then to randomly light based disk among the four in the middle that is illuminated once. The participant then continues to finish the course on till the end disk. This study used this test to effectively measure agility levels in male team sports players [9,33]. Each of the participants is given two attempts and the better time is used for comparison.

Reactive Agility T-Test (RAT) with Dribbling and Shooting: This test was conducted with the assistance of the Fitlight system placed on cones as depicted below in figure 3. In the experiments, the athletes were required to perform movements in response to lights signals and switching from one direction to another with dribbling. They also changed the movements swiftly.At the end of the test, the athletes shooting. In this version of the Reactive Agility T-Test, agility and the participants' reaction time were measured depending on their response to the information indicated within some time limit. The Fitlight rule was arranged in such a way that either of the two dots placed at the end of the T was bright when the middle dot was touched randomly [1,9,34]. The time spent by the participant was summed up as each participle was allowed to try the activity three times and only the result of the best trial was taken as the measure for dribbling time While shooting time was calculated in the following manner If the ball hit the basket is counted as two points if the ball touched the board is counted as one point and if the ball not touched is counted as zero Each of the experimenters was allowed to three attempt the activity and the average was calculated.

Auditory and Visual Attention Apparatus 63014 response panel test:

This accessory contains an optical reaction speed measurement device Li Lafayette Instrument Visual Reaction Time Apparatus 63014 Response Panel.

DESCRIPTION:

The 63014, Multi-Choice Reaction Timer, This unit comes complete with a Master Control which contains a 1/100 second digital clock, pre-stimulus intensity control, variable cue-stimulus delays, a stimulus selector and a response selector; a Response Unit with three telegraph keys and auxiliary; a four mode Stimulus Unit with a 1-second cue light, a three colored stimulus light (red, green, blue), and auditory 2800 Hz Sonalert, and auxiliary; a Slide Viewer; and electronic Voice Reaction-Timer Control with desk mike, throat mike, push button box, and all the necessary cables and connectors.

SPECIFICATIONS:

Line Voltage: 105/125V AC 50/60 Hz
Minimum Reaction Time: 1/100 second
Maximum Reaction Time: 999.99 seconds
Auxiliary Stimulus: 6 volts AC to 1 amp

CONTROLS:

Power Switch: This is the main power switch of the unit and should be off while making all connections.

Initiate: The initiate switch is used to start a trial cycle, activating the cue light, stimulus and clock. Once a cycle is initiated, this key may be released; however, it does not have to be released in order for a response to be recorded. This feature is particularly useful in accurately measuring fast reaction times.
Stimulus Selector: The Stimulus Selector determines which stimulus appears with the onset of the clock. The three colored lights (blue, red, and green) and buzzer (Sonalert) are all located in the stimulus unit housing. The Viewer is used to present a 35mm slide. In the AUDIO position, the timer is initiated whenever Channel #1 of the Voice Reaction-Time Apparatus is activated. In the AUX position, any 6 volt AC device drawing up to 1 ampere will be activated. The NONE position allows the timer to be activated without any related stimulus. This may be especially useful when using the External Initiate.
Response Selector: The Response Selector switch determines which response stops the reaction timer. For example, when set to Key 1, the first telegraph key and only that will stop the timer. Any auxiliary device providing a switch closure will stop the timer when connected to the auxiliary pin sockets on the telegraph key board when the response Selector is on AUX. When in the AUDIO position, the timer will stop whenever Channel #2 of the Voice Reaction-Timer is activated.
Cue Duration: The actual cue duration is fixed at 1 second; however, this control may be used to extend the delay between cue offset and stimulus onset from 1-10 seconds. When this switch is off, the cue will not be presented.
Pre-Level Intensity: The Pre-Level intensity contact is used to keep the filament of the stimulus lamps hot to reduce thermal delay time. When this control is fully counter-clockwise, the stimulus lamps will not be visible. By adjusting this control clockwise, it is possible to perform reaction time tests on different thresholds and j.n.d.'s. Note that this control is only used for the three colored lamps in the stimulus unit.
Reset: The Reset push button may be used to ABORT a trial at any given time.
External Initiate: Located on the back panel, any switch closure across these binding posts will perform the same function as the front panel initiate switch.

Appendix B:

S1. Distribution of 10-week Plyogility workout program for basketball players.

Stage		General preparation			Special preparation				Pre-competition preparation		
Week		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Load	*Max*										
	High										
	Mid										
Week Time		*420 min*	*420 min*	*360 min*	*420 min*	*480 min*	*360 min*	*480 min*	*480 min*	*360 min*	*420 min*
Total Program Time		*4200 min*									

Week	*Session*	*Intensity %*	*FitLight*	*Organizing the Session*					*Session Time*
				Warm-UP	*Main Phase*			*Recovery*	
					Plyogility	*Skills*	*Tec& Tac*		
1	*1*	*70%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*
	2	*75%*		*10 min*	*35 min*	*30 min*	*20 min*	*5 min*	*100 min*
	3	*75%*		*10 min*	*35 min*	*30 min*	*20 min*	*5 min*	*100 min*
	4	*65%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*
2	*5*	*75%*		*10 min*	*30 min*	*35 min*	*25 min*	*5 min*	*105 min*
	6	*75%*		*10 min*	*30 min*	*35 min*	*25 min*	*5 min*	*105 min*
	7	*80%*		*10 min*	*35 min*	*35 min*	*25 min*	*5 min*	*110 min*
	8	*70%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*
3	*9*	*75%*		*10 min*	*35 min*	*30 min*	*25 min*	*5 min*	*105 min*
	10	*75%*		*10 min*	*40 min*	*35 min*	*20 min*	*5 min*	*110 min*
	11	*80%*		*10 min*	*45 min*	*30 min*	*25 min*	*5 min*	*115 min*
	12	*70%*		*10 min*	*35 min*	*30 min*	*20 min*	*5 min*	*105 min*
4	*13*	*75%*		*10 min*	*45 min*	*35 min*	*20 min*	*5 min*	*115 min*
	14	*80%*		*10 min*	*40 min*	*35 min*	*20 min*	*5 min*	*110 min*
	15	*85%*		*10 min*	*35 min*	*35 min*	*20 min*	*5 min*	*105 min*
	16	*65%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*
5	*17*	*75%*		*10 min*	*40 min*	*35 min*	*25 min*	*5 min*	*115 min*
	18	*85%*		*10 min*	*45 min*	*35 min*	*25 min*	*5 min*	*120 min*
	19	*85%*		*10 min*	*40 min*	*30 min*	*25 min*	*5 min*	*100 min*
	20	*70%*		*10 min*	*35 min*	*35 min*	*25 min*	*5 min*	*110 min*

6	*21*	*80%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*
	22	*80%*		*10 min*	*35 min*	*30 min*	*20 min*	*5 min*	*100 min*
	23	*75%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
	24	*70%*		*10 min*	*35 min*	*35 min*	*25 min*	*5 min*	*110 min*
7	*25*	*75%*		*10 min*	*40 min*	*35 min*	*25 min*	*5 min*	*115 min*
	26	*75%*		*10 min*	*35 min*	*30 min*	*25 min*	*5 min*	*105 min*
	27	*80%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
	28	*70%*		*10 min*	*30 min*	*35 min*	*25 min*	*5 min*	*105 min*
8	*29*	*75%*		*10 min*	*40 min*	*35 min*	*25 min*	*5 min*	*105 min*
	30	*75%*		*10 min*	*45 min*	*30 min*	*25 min*	*5 min*	*105 min*
	31	*80%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
	32	*65%*		*10 min*	*40 min*	*35 min*	*20 min*	*5 min*	*110 min*
9	*33*	*80%*		*10 min*	*30 min*	*35 min*	*25 min*	*5 min*	*105 min*
	34	*85%*		*10 min*	*35 min*	*35 min*	*25 min*	*5 min*	*110 min*
	35	*75%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
	36	*70%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
10	*37*	*75%*		*10 min*	*30 min*	*35 min*	*25 min*	*5 min*	*105 min*
	38	*75%*		*10 min*	*35 min*	*35 min*	*25 min*	*5 min*	*110 min*
	39	*80%*		*10 min*	*30 min*	*30 min*	*25 min*	*5 min*	*100 min*
	40	*65%*		*10 min*	*30 min*	*30 min*	*20 min*	*5 min*	*95 min*

S2. Demonstrates a plyogility training session for basketball players using the FitLight.

Plyogility session		
Illustration and formation of pregnancy cycle		
Training distance	**10/15/20/25 meters**	
The number of times the speed of direction change	**Once**	
direction change angle	**30 degrees**	

The number of straight lines for running	**1/2(lines)** **Multiple**	
Variations	 **/ a ball without ball**	

		Physical	skill	visual	auditory	mixed	complex	total	notes
The goal of the training		*	*	*		*	*		
Pregnancy cycle formation	performance time	Repetition	Rest every now and then	number of groups	time for each group	Rest between groups	Total training time	Rest before starting a new training	notes
	4 min(max)	4 r	15 sec	4r	45 sec	1 min	4.7 min	1min	
Cognitive map of the performance sequence									
			1	1	2				
The number of colors used		2/3	*		*				
FitLight time and shape		Average	*						

	fast		*	*				
	Full	*						
	partial			*				

S3. plyogility exercises with fitlight technology

No.	Exercises
1	**A) FitLight Lateral Shuffle** Objective: Improve lateral agility. Description: Shuffle side to side between FitLights, touching each light. Sets/Repetitions**:** 3-5 sets of 30 seconds.
	B) FitLight Vertical Jump Objective: Enhance explosive power. Description: Jump to touch the highest FitLight. Sets/Repetitions: 3-5 sets of 8-10 jumps.
2	**A) FitLight Cone Dribble** Objective: Improve ball handling and agility. Description: Dribble around FitLights set up in a cone pattern. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Tuck Jumps Objective: Develop explosive leg power. Description: Jump and tuck knees to touch the FitLight above. Sets/Repetitions: 3-5 sets of 6-8 jumps.
3	**A) FitLight Lateral Bounds** Objective: Enhance lateral power and stability. Description: Jump side to side to touch the FitLights. Sets/Repetitions: 3-5 sets of 10 jumps per side.
	B) FitLight Agility Ladder Objective: Improve foot speed and coordination. Description: Perform agility ladder drills while touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
4	**A) FitLight Plyometric Push-Ups** Objective: Increase upper body power. Description: Perform push-ups and explode to touch a FitLight. Sets/Repetitions: 3-5 sets of 6-8 push-ups.
	B) FitLight Single-Leg Hops Objective: Improve balance and unilateral strength. Description: Hop on one leg to touch the FitLights. Sets/Repetitions: 3-5 sets of 5-6 hops per leg.

5	**A) FitLight Medicine Ball Chest Pass** Objective: Develop upper body explosiveness. Description: Perform a chest pass while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 passes.
	B) FitLight Fast Break Simulation Objective: Enhance speed and finishing skills. Description: Sprint to touch FitLights set up in a fast break pattern, finishing with a layup. Sets/Repetitions: 3-5 sets of 5 fast breaks.
6	**A) FitLight High Knees** Objective: Increase speed and agility. Description: Perform high knees while touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Burpee to Jump Objective: Improve overall fitness and explosiveness. Description: Perform a burpee, then jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 6-8 burpees.
7	**A) FitLight Lateral Cone Hops** Objective: Enhance lateral agility and power. Description: Jump over cones while touching FitLights. Sets/Repetitions: 3 -5 sets of 10 hops per side.
	B) FitLight Split Jumps Objective: Develop leg strength and explosiveness. Description: Perform split jumps while reaching for FitLights. Sets/Repetitions: 3-5 sets of 6-8 jumps.
8	**A) FitLight Reaction Drills** Objective: Improve reaction time and agility. Description: Respond to FitLight signals by sprinting or shuffling to touch them. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Jump Rope Objective: Improve cardiovascular fitness and coordination. Description: Jump rope while intermittently touching FitLights. Sets/Repetitions: 3-5 sets of 1 minute.
9	**A) FitLight Plyometric Side Lunges** Objective: Increase lateral strength and power. Description: Perform side lunges while reaching for FitLights. Sets/Repetitions: 3-5 sets of 5-6 lunges per side.
	B) FitLight Shuttle Runs Objective: Enhance speed and agility. Description: Sprint between FitLights set up in a shuttle run pattern. Sets/Repetitions: 3-5 sets of 30 seconds.
10	**A) FitLight Frog Jumps** Objective: Develop lower body power. Description: Jump forward in a squat position to touch FitLights. Sets/Repetitions: 3-5 sets of 6-8 jumps.

	B) FitLight Plank Jacks Objective: Increase core stability and agility. Description: In a plank position, jump feet out and in while touching FitLights. Sets/Repetitions: 3-5 sets of 10-12 jumps.
11	**A) FitLight Lateral Step-Ups** Objective: Improve leg strength and coordination. Description: Step up onto a box while reaching for FitLights. Sets/Repetitions: 3-5 sets of 8-10 steps per leg.
	B) FitLight Power Skips Objective: Enhance explosive power and coordination. Description: Skip forward while reaching for FitLights. Sets/Repetitions: 3-5 sets of 10 skips.
12	**B) FitLight Defensive Slides** Objective: Improve lateral movement and defensive skills. Description: Slide laterally to touch FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Jumping Jacks Objective: Improve coordination and cardiovascular fitness. Description: Perform jumping jacks while touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
13	**A) FitLight Single-Leg Box Jumps** Objective: Increase unilateral strength and power. Description: Jump onto a box using one leg while reaching for a FitLight. Sets/Repetitions: 3-5 sets of 5-6 jumps per leg.
	B) FitLight Wall Ball Shots Objective: Develop power and coordination. Description: Perform wall ball shots while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 shots.
14	**A) FitLight Agility Hurdles** Objective: Improve foot speed and coordination. Description: Jump over hurdles while touching FitLights. Sets/Repetitions: 3-5 sets of 5-6 hurdles.
	B) FitLight Reaction Sprints Objective: Enhance speed and reaction time. Description: Sprint to touch the nearest FitLight when it lights up. Sets/Repetitions: 3-5 sets of 30 seconds.
15	**A) FitLight Plyometric Bear Crawl** Objective: Develop full-body strength and agility. Description: Perform a bear crawl while incorporating explosive movements to touch FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Fast Feet Objective: Increase foot speed and agility. Description: Perform quick feet drills while touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.

16	**A) FitLight Lateral Medicine Ball Toss** Objective: Develop rotational power. Description: Toss a medicine ball laterally while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 tosses per side.
	B) FitLight Cross-Over Dribble Objective: Improve ball handling and agility. Description: Perform cross-over dribbles while moving between FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
17	**A) FitLight Jumping Lunges** Objective: Enhance leg strength and explosiveness. Description: Perform jumping lunges while reaching for FitLights. Sets/Repetitions: 3-5 sets of 6-8 jumps per leg.
	B) FitLight Sprint to Layup Objective: Improve speed and finishing skills. Description: Sprint to a FitLight and finish with a layup. Sets/Repetitions: 3 sets of 5 layups.
18	**A) FitLight Plyometric Squats** Objective: Develop lower body power. Description: Perform a squat and jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 jumps.
	B) FitLight Reaction Ball Drills Objective: Improve reaction time and hand-eye coordination. Description: Use a reaction ball to touch FitLights as they light up. Sets/Repetitions: 3-5 sets of 30 seconds.
19	**A) FitLight Lateral Wall Pass** Objective: Develop passing skills and lateral movement. Description: Pass a basketball against a wall while moving laterally to touch FitLights. Sets/Repetitions: 3-5 sets of 8-10 passes.
	A) FitLight Zigzag Dribble Objective: Improve dribbling skills and agility. Description: Dribble the basketball in a zigzag pattern between FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Plyometric Step-Back Objective: Enhance shooting and explosive movement. Description: Step back explosively to shoot after touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 shots.
20	**A) FitLight Lateral Plyometric Push-Up** Objective: Increase upper body strength and coordination. Description: Perform a push-up, then jump laterally to touch a FitLight. Sets/Repetitions: 3-5 sets of 6-8 push-ups.
	B) FitLight Box Drill with Ball Objective: Improve agility and ball handling. Description: Set up FitLights in a box pattern and dribble while moving quickly between them. Sets/Repetitions: 3-5 sets of 30 seconds.

21	**A) FitLight Jumping Side Kicks** Objective: Develop leg strength and coordination. Description: Jump and kick to the side to touch a FitLight. Sets/Repetitions: 3-5 sets of 6-8 kicks per side.
	B) FitLight Reaction Sprints with Ball Objective: Enhance speed and ball handling under pressure. Description: Sprint to touch the nearest FitLight while dribbling the basketball. Sets/Repetitions: 3-5 sets of 30 seconds.
22	**A) FitLight Plyometric Bear Crawl to Jump** Objective: Develop full-body strength and explosiveness. Description: Bear crawl to a FitLight, then jump to touch it. Sets/Repetitions: 3-5 sets of 5-6 crawls and jumps.
	B) FitLight Lateral Hurdle Jumps Objective: Improve lateral agility and explosive power. Description: Jump over hurdles while moving laterally to touch FitLights. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
23	**A) FitLight Medicine Ball Slams** Objective: Develop upper body power and core strength. Description: Slam a medicine ball down while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 slams.
	B) FitLight Fast Feet with Ball Objective: Increase foot speed and ball handling. Description: Perform quick feet drills while dribbling a basketball and touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
24	**A) FitLight Jumping Toe Touches** Objective: Enhance coordination and explosiveness. Description: Jump and reach for your toes while touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 jumps.
	B) FitLight Plyometric Lateral Raises Objective: Develop shoulder strength and coordination. Description: Perform lateral raises with light weights while jumping to touch FitLights. Sets/Repetitions: 3-5 sets of 8-10 raises.
	C) FitLight Cross-Over Step-Back Objective: Improve shooting and footwork. Description: Perform a cross-over dribble, then step back to shoot after touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 shots.
25	**A) FitLight Jumping Lunges with Ball** Objective: Enhance leg strength and coordination. Description: Perform jumping lunges while dribbling a basketball and reaching for FitLights. Sets/Repetitions: 3-5 sets of 5-6 jumps per leg.
	B) FitLight Plyometric Wall Sit Objective: Develop lower body endurance and strength. Description: Hold a wall sit while reaching for FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.

	C) FitLight Reaction Dribble Objective: Improve reaction time and ball handling. Description: Dribble the basketball and react to FitLights lighting up by sprinting to touch them. Sets/Repetitions: 3-5 sets of 30 seconds.
26	**A) FitLight Lateral Box Jumps** Objective: Increase lateral explosiveness. Description: Jump onto a box laterally while reaching for a FitLight. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
	B) FitLight Jumping Squats Objective: Develop lower body power. Description: Perform a squat and jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 jumps.
	C) FitLight Fast Break Drills with Ball Objective: Enhance speed and finishing skills. Description: Sprint to touch FitLights set up in a fast break pattern while dribbling. Sets/Repetitions: 3–5 sets of 5 fast breaks.
27	**A) FitLight Cool Down Stretching** Objective: Enhance recovery and flexibility. Description: Perform light stretching while moving between FitLights. Sets/Repetitions: 3-5 sets of 5 minutes.
	B) FitLight Plyometric Hip Thrusts Objective: Develop explosive hip strength. Description: Perform a hip thrust and explode upward to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 thrusts.
28	**A) FitLight Lateral Medicine Ball Toss** Objective: Develop rotational power and coordination. Description: Toss a medicine ball laterally while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 tosses per side.
	A) FitLight Plyometric Step-Ups Objective: Improve leg strength and explosive power. Description: Step up onto a box explosively while reaching for a FitLight. Sets/Repetitions: 3-5 sets of 8-10 steps per leg.
	B) FitLight Jumping Side Lunges Objective: Enhance lateral strength and explosiveness. Description: Perform a side lunge and jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
29	**A) FitLight Reaction Ball Drills** Objective: Improve hand-eye coordination and reaction time. Description: Use a reaction ball to touch FitLights as they light up. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Plyometric Bear Crawl to Jump Objective: Develop full-body strength and explosiveness. Description: Bear crawl to a FitLight, then jump to touch it. Sets/Repetitions: 3-5 sets of 5-6 crawls and jumps.

	A) FitLight Jumping Jacks with Ball Objective: Improve coordination and cardiovascular fitness. Description: Perform jumping jacks while dribbling a basketball and touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Cross-Over Dribble to Layup Objective: Enhance dribbling and finishing skills. Description: Perform a cross-over dribble, then finish with a layup after touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 layups.
30	**A) FitLight Plyometric Hip Thrusts** Objective: Develop explosive hip strength. Description: Perform a hip thrust and explode upward to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 thrusts.
	B) FitLight Fast Feet with Ball Objective: Increase foot speed and ball handling. Description: Perform quick feet drills while dribbling a basketball and touching FitLights. Sets/Repetitions: 3 sets of 30 seconds.
	C) FitLight Jumping Toe Touches Objective: Enhance coordination and explosiveness. Description: Jump and reach for your toes while touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 jumps.
31	**A) FitLight Plyometric Wall Pass** Objective: Develop passing skills and upper body strength. Description: Pass a basketball against a wall while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 passes.
	B) FitLight Lateral Hurdle Jumps Objective: Improve lateral agility and explosive power. Description: Jump over hurdles while moving laterally to touch FitLights. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
	C) FitLight Reaction Sprints with Ball Objective: Enhance speed and ball handling under pressure. Description: Sprint to touch the nearest FitLight while dribbling the basketball. Sets/Repetitions: 3-5 sets of 30 seconds.
32	**A) FitLight Jumping Squats** Objective: Develop lower body power. Description: Perform a squat and jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 jumps.
	B) FitLight Fast Break Drills with Ball Objective: Enhance speed and finishing skills. Description: Sprint to touch FitLights set up in a fast break pattern while dribbling. Sets/Repetitions: 3-5 sets of 5 fast breaks.
33	**A) FitLight Cool Down Stretching** Objective: Enhance recovery and flexibility. Description: Perform light stretching while moving between FitLights. Sets/Repetitions: 3-5 sets of 5 minutes.

	B) FitLight Lateral Box Jumps Objective: Increase lateral explosiveness. Description: Jump onto a box laterally while reaching for a FitLight. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
	C) FitLight Jumping Lunges with Ball Objective: Enhance leg strength and coordination. Description: Perform jumping lunges while dribbling a basketball and reaching for FitLights. Sets/Repetitions: 3-5 sets of 5-6 jumps per leg.
34	**A) FitLight Plyometric Wall Sit** Objective: Develop lower body endurance and strength. Description: Hold a wall sit while reaching for FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
	B) FitLight Reaction Dribble Objective: Improve reaction time and ball handling. Description: Dribble the basketball and react to FitLights lighting up by sprinting to touch them. Sets/Repetitions: 3-5 sets of 30 seconds.
	C) FitLight Jumping Side Kicks Objective: Develop leg strength and coordination. Description: Jump and kick to the side to touch a FitLight. Sets/Repetitions: 3-5 sets of 6-8 kicks per side.
35	**A) FitLight Plyometric Step-Back** Objective: Enhance shooting and explosive movement. Description: Step back explosively to shoot after touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 shots.
	B) FitLight Lateral Cone Hops Objective: Enhance lateral agility and power. Description: Jump over cones while moving laterally to touch FitLights. Sets/Repetitions: 3-5 sets of 10 hops per side.
	C) FitLight Jumping Side Lunges Objective: Enhance lateral strength and explosiveness. Description: Perform a side lunge and jump to touch a FitLight. Sets/Repetitions: 3-5 sets of 5-6 jumps per side.
36	**A) FitLight Cross-Over Step-Back** Objective: Improve shooting and footwork. Description: Perform a cross-over dribble, then step back to shoot after touching a FitLight. Sets/Repetitions: 3 sets of 6-8 shots.
	B) FitLight Jumping Jacks with Ball Objective: Improve coordination and cardiovascular fitness. Description: Perform jumping jacks while dribbling a basketball and touching FitLights. Sets/Repetitions: 3-5 sets of 30 seconds.
37	**C) FitLight Plyometric Bear Crawl to Jump** Objective: Develop full-body strength and explosiveness. Description: Bear crawl to a FitLight, then jump to touch it. Sets/Repetitions: 3-5 sets of 5-6 crawls and jumps.

	D) FitLight Lateral Medicine Ball Toss Objective: Develop rotational power and coordination. Description: Toss a medicine ball laterally while jumping to touch a FitLight. Sets/Repetitions: 3-5 sets of 8-10 tosses per side.
38	**A) FitLight Jumping Toe Touches** Objective: Enhance coordination and explosiveness. Description: Jump and reach for your toes while touching a FitLight. Sets/Repetitions: 3-5 sets of 6-8 jumps.
	B) FitLight Cool Down Stretching Objective: Enhance recovery and flexibility. Description: Perform light stretching while moving between FitLights. Sets/Repetitions: 3-5 sets of 5 minutes.
39	**A) FitLight Reaction Ladder Drills** **Objective:** Improve foot speed and reaction time. **Description:** Set up FitLights at various points in a ladder pattern. Perform quick footwork drills, reacting to the lights as they turn on. **Sets/Repetitions:** 3-5 sets of 30 seconds.
	B) FitLight Jump and Pass **Objective:** Enhance passing accuracy and explosive movement. **Description:** Jump to touch a FitLight and immediately pass the ball to a partner. **Sets/Repetitions:** 3-5 sets of 8-10 passes.
40	**A) FitLight Lateral Quick Steps** **Objective:** Increase lateral agility. **Description:** Perform quick lateral steps to touch FitLights set up in a line. **Sets/Repetitions:** 3-5 sets of 30 seconds.
	B) FitLight Plyometric Box Drill **Objective:** Develop explosive power and agility. **Description:** Set up boxes and FitLights. Jump onto the box, then quickly touch the FitLight before jumping down. **Sets/Repetitions:** 3-5 sets of 5-6 jumps per leg.

Table 4. Descriptive statistics and sample test.

Group	Outcome measures	Pre			Post			t	ES	CI		Imp.	p
		Mean	Std.	CV %	Mean	Std.	CV %			Lower	Upper		
EG	RRH (ms)	0.395	0.006	1.59	0.343	0.005	1.46	28.90	0.98	0.048	0.055	13.16%	<0.01
	RLH (ms)	0.445	0.008	1.78	0.391	0.006	1.46	25.69	0.98	0.049	0.058	12.13%	<0.01
	T-Test D (sec)	21.809	0.094	0.43	17.621	0.613	3.48	25.13	0.98	3.832	4.543	19.20%	<0.01
	T-Test S (score)	2.688	0.793	29.51	4.688	0.704	15.02	21.91	0.97	-2.195	-1.805	74.40%	<0.01
	Illinois Test (sec)	21.046	0.560	2.66	17.924	0.198	1.10	21.24	0.97	2.809	3.435	14.83%	<0.01
CG	RRH (ms)	0.395	0.007	1.77	0.380	0.010	2.63	7.46	0.79	0.011	0.020	3.80%	<0.01
	RLH (ms)	0.450	0.010	2.22	0.427	0.013	3.04	7.15	0.77	0.013	0.023	5.11%	<0.01
	T-Test D (sec)	21.811	0.093	0.43	20.024	0.462	2.31	15.77	0.94	1.544	2.026	8.19%	<0.01
	T-Test S (score)	2.563	0.814	31.76	3.563	0.814	22.85	11.91	0.90	1.490	2.139	39.02%	<0.01
	Illinois Test (sec)	21.110	0.576	2.73	19.296	0.465	2.41	7.46	0.79	0.011	0.020	8.59%	<0.01

Table 5. Post-hoc analyses incorporated analysis of variance (ANOVA).

Outcome measures	Measurement			Group			Group ×Time Interaction		
	F	P	η^2	F	P	η^2	F	P	η^2
RRH (ms)	602.45	<0.01	0.953	69.43	<0.01	0.698	175.85	<0.01	0.854
RLH (ms)	481.83	<0.01	0.941	39.68	<0.01	0.569	120.25	<0.01	0.800
T-Test D (sec)	879.41	<0.01	0.967	163.47	<0.01	0.845	142.30	<0.01	0.826
T-Test S (score)	1080.00	<0.01	0.973	5.25	<0.01	0.149	120.00	<0.01	0.800
Illinois Test (sec)	543.77	<0.01	0.948	30.43	<0.01	0.504	38.15	<0.01	0.560

Table 6. independent t-test of experimental and control groups.

Outcome measures	EG		CG		t	ES	D. Imp.	P	CI	
	Mean	Std.	Mean	Std.					Lower	Upper
RRH (ms)	0.343	0.005	0.380	0.010	-13.19	0.85	5.9%	<0.01	-0.042	-0.031
RLH (ms)	0.391	0.006	0.427	0.013	-9.74	0.76	5.87%	<0.01	-0.043	-0.028
T-Test D (sec)	17.621	0.613	20.024	0.462	-12.52	0.84	6.97%	<0.01	-2.794	-2.011
T-Test S (score)	4.688	0.704	3.563	0.814	4.18	0.37	7.76%	<0.01	0.575	1.675
Illinois Test (sec)	17.924	0.198	19.296	0.465	-10.85	0.80	7.54%	<0.01	-1.630	-1.114

Figure 1. Li Lafayette Instrument Visual Reaction Time Apparatus 63014 Response Panel

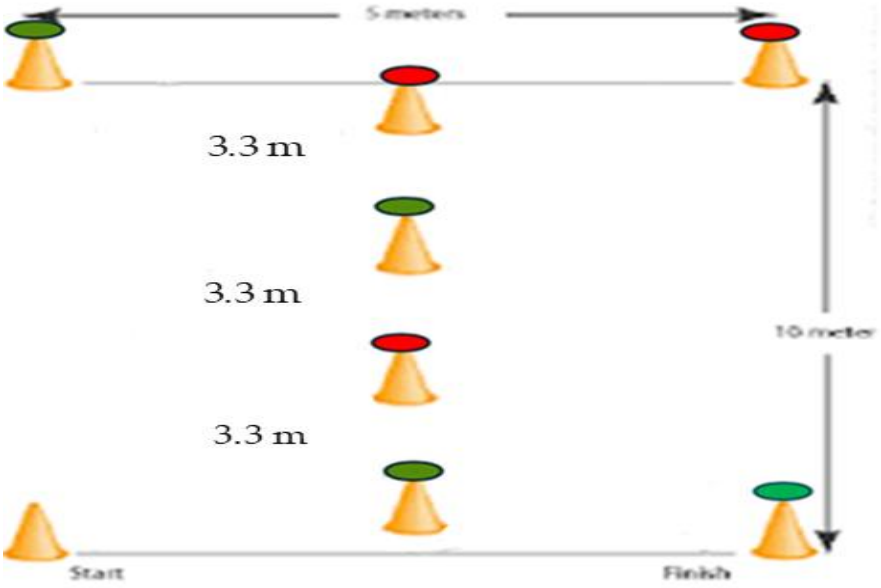

Figure 2. . Illustration of illinoise test with fitlight for the reactive agility test

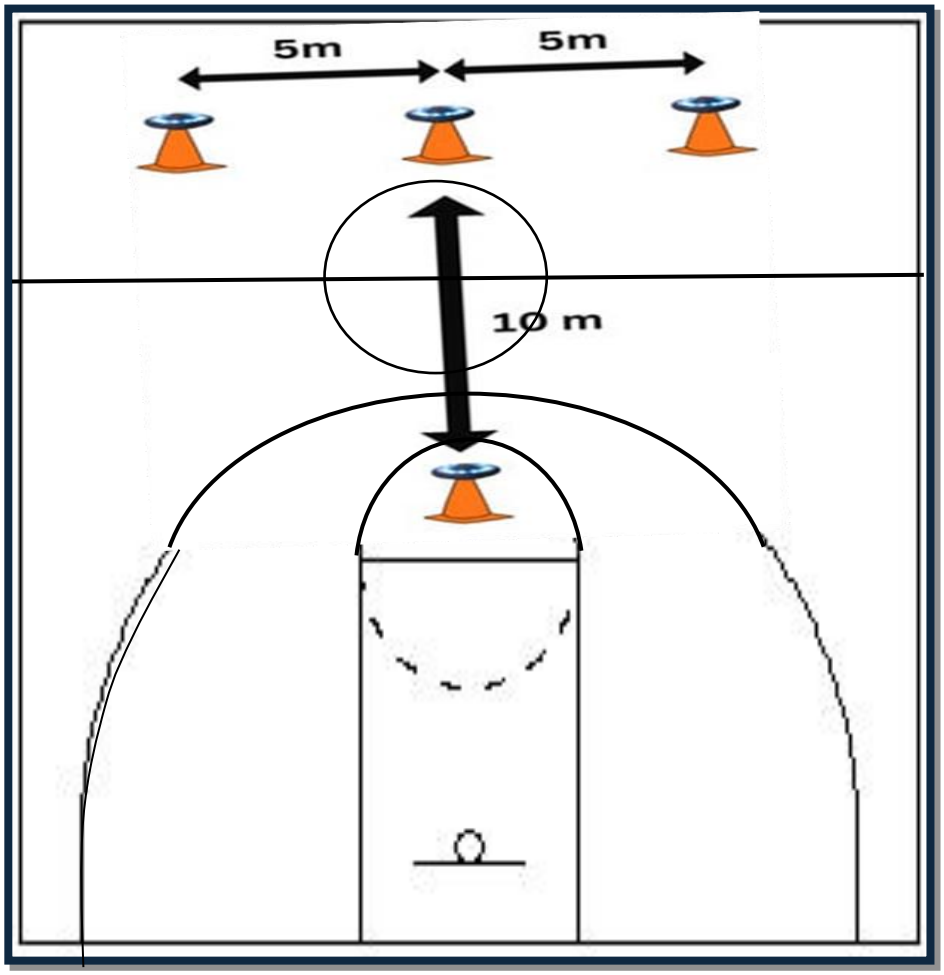

Figure 3. . Illustration of Reactive Agility T-Test (RAT) with Dribbling and Shooting.

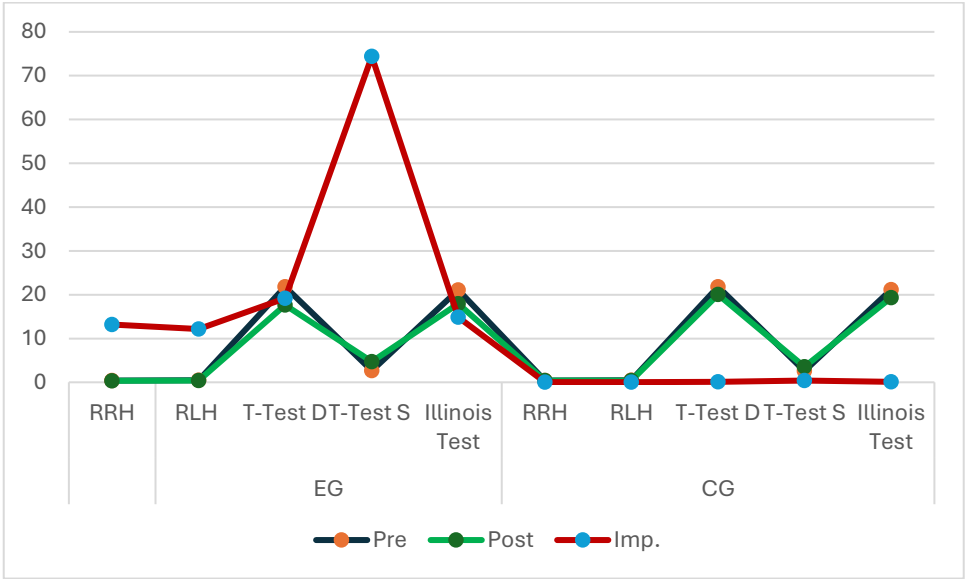

Figure 4. depict the measure of the study variables with the experimental group and the control group at both the pre and post stages of the study.

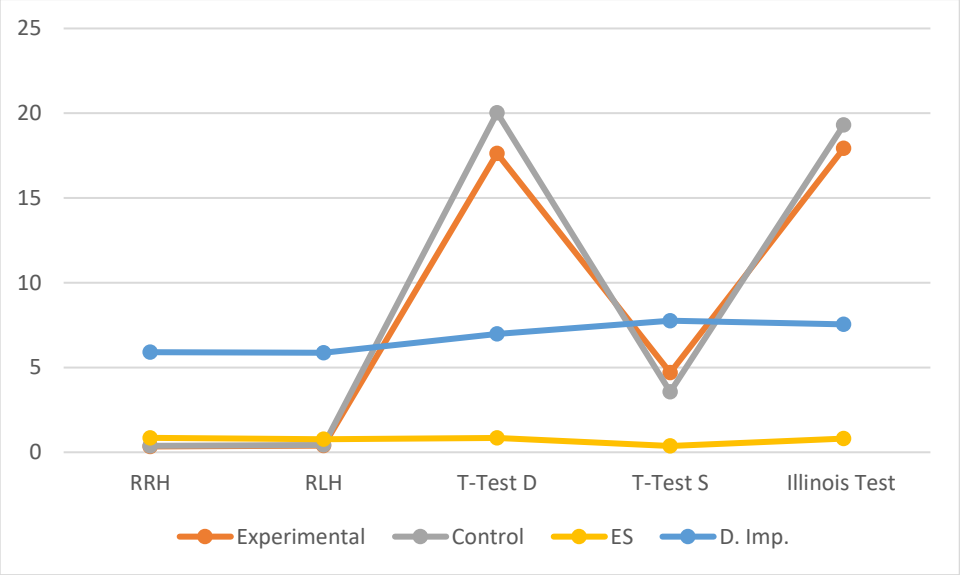

Figure 5. illustrates the nature of the post-measurements and the improvement rates between the experimental and the control groups.