Comparing Verbal Cueing and The Constraint-Led Approach For Teaching the Kettlebell Swing

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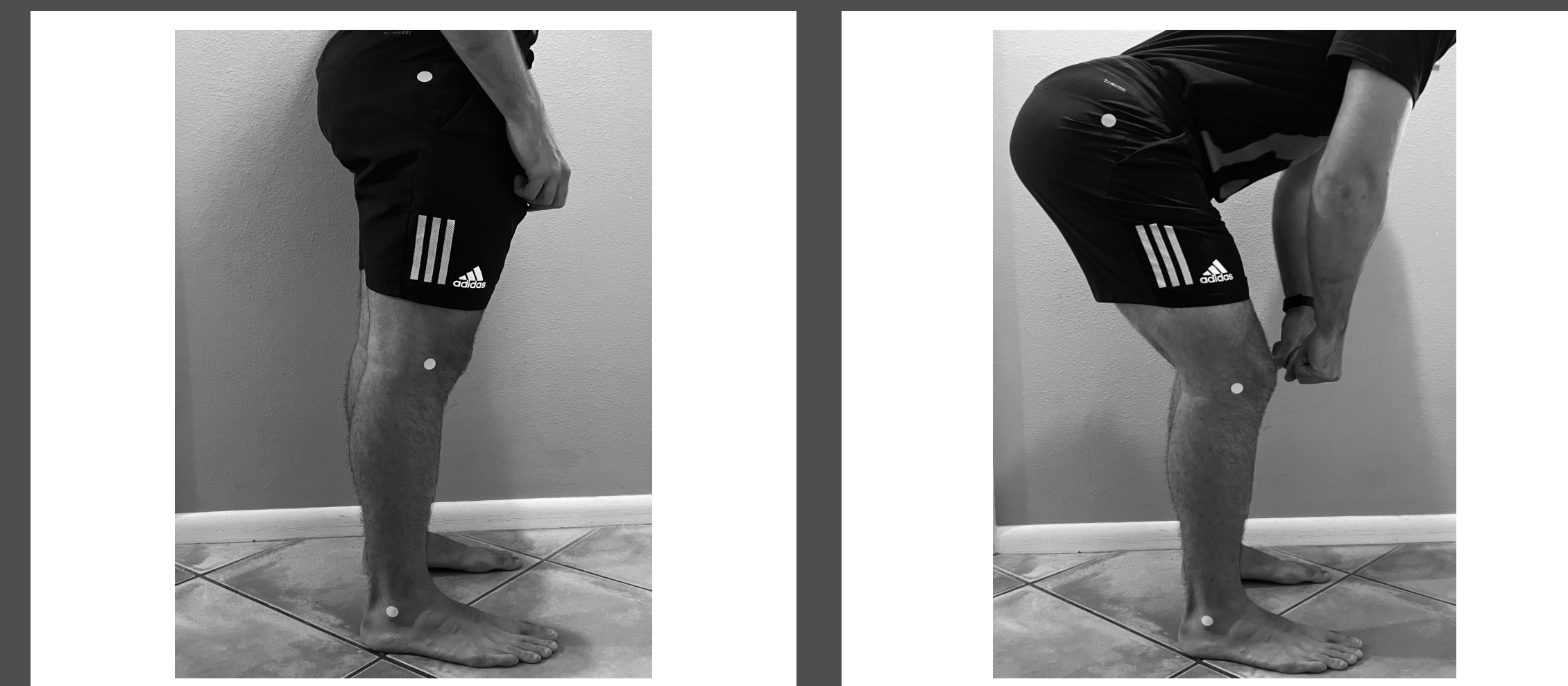
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Background

- The hip hinge is often taught through verbal cues.
- Verbal cues may be insufficient to teach hip hinging in complex movements like the kettlebell (KB) swing.
- The constraint-led approach (CLA) is a method for teaching movement that includes using external cues.[2]
- Research suggests external cueing can improve athletic performance.[3]
- There is limited research on the use of CLA in resistance training.
- Therefore, the purpose of this study was to assess the effectiveness of different coaching styles to teach the KB swing.
- We hypothesized that a combined coaching style would be the most effective method for teaching the KB swing.

Methods

- 73 participants (male = 29 and female = 44) with a mean age = 24.0 ± 5.49 years with low to average self-reported confidence with performing the kettlebell (KB) swing.
- Participants were randomly assigned to physical, verbal, or combined coaching conditions.
- Subject's joint angles and subjective confidence ratings were assessed pre and post-intervention.
- Participants performed a standardized warm-up followed by 5 KB swings to determine baseline joint angles.
- Subsequently, each group performed 3 sets of 15 KB swings with respective coaching styles provided before each set.

Inclusion Criteria

Participants who met inclusion criteria:
- Between the ages of 18 and 55
- No current complaints of low back pain or lower extremity injury
- Subjective rating of 3/5 or less on confidence with kettlebell swings
- No positive response on PAR-Q

Randomized (n=73)

Allocated to verbal cues group (n=24) | Allocated to physical constraints group (n=25) | Allocated to combo group (n=24)

Analyzed (n=24): Excluded from analysis (n=0) | Analyzed (n=25) Excluded from analysis (n=0) | Analyzed (n=24) Excluded from analysis (n=0)

Sticker placement for joint angle assessment

Physical constraints

Results

- No significant differences between groups at baseline (p>0.05).
- Hip flexion significantly increased in the physical constraint group compared to the verbal cueing group at follow-up (mean difference= 8.7; 95% confidence interval [CI]= -17.0-(-0.36); p<0.001).
- The combined group's joint angles did not achieve statistical significance within the group or between any groups across time.
- Self-reported confidence improved across all groups pre- to post (p<0.001) with no significant difference between groups.

Joint angles

Table 2 Outcome measures for pre-intervention and post-intervention

	VC group (n = 24)				PC group (n = 25)				VC + PC group (n = 24)				P value (between groups at baseline)	P value (time-by group interaction)
	Pre	Post	Effect Size	P value within group	Pre	Post	Effect Size	P value within group	Pre	Post	Effect Size	P value within group		
Hip Flexion Angle	92.0 ± 8.5	93.3 ± 11.7	0.12 2	0.555	96.2 ± 17.7	106.4 ± 13.8	0.87 2	<0.001	95.6 ± 13.6	100.5 ± 12.6	0.36 9	0.08 4	0.519	0.037
Knee Flexion Angle	57.5 ± 17.2	45.0 ± 16.1	0.76 7	0.001	53.2 ± 17.6	47.2 ± 19.0	0.38 3	0.06 7	49.5 ± 15.5	43.4 ± 13.8	0.41 2	0.05 1	0.269	0.267
Dorsiflexion Angle	9.8 ± 8.0	6.0 ± 8.9	0.46 2	0.033	7.0 ± 10.0	7.2 ± 9.0	0.04 1	0.84 0	6.4 ± 8.1	5.4 ± 5.2	0.14 7	0.48 0	0.362	0.154
Self-reported Confidence	2.0 ± 1.1	3.9 ± 0.6	1.0	<0.001	1.7 ± 1.2	3.8 ± 0.8	1.62	<0.001	1.7 ± 1.2	4.0 ± 0.6	1.0	<0.001	0.554	0.420

Conclusion

- Subjective confidence improved regardless of coaching condition.
- The physical constraints group was superior for increasing hip flexion angle (a proxy for a proper hip hinge).
- Greater cueing (combined group) was not superior for learning hip hinging compared to verbal or physical cueing alone.

Clinical Relevance

- Individuals unfamiliar with hip hinging during the KB swing may benefit more from external cues (physical constraints) than verbal cueing alone.
- Multiple styles of coaching can improve an individual's confidence in performing a movement.

References