Franklin Method® Images' Affects on Jumping

Teresa Heiland, Ph.D. & Robert Rovetti, Ph.D.

Departments of Theatre Arts & Dance and Mathematics – LOYOLA MARYMOUNT UNIVERSITY, LOS ANGELES, CA, USA

Presented at the International Association of Dance Medicine & Science Annual Meeting, The Hague, The Netherlands, October 29 – 31, 2009

The Franklin Method® offers dancers a plethora of pedagogically focused images to enhance many movement goals. To determine images to explore for improving jump height, we solicited advice from Eric Franklin (2009, personal communication) who suggested 43 images that support jumping. We narrowed down to four images that consisted of both a brief narration and a drawing of a dancer embodying the image (See Fig. 1-4). Drawings are by Eric Franklin with the assistance of Sonja Burger.

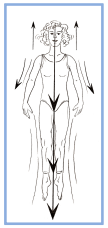

Figure 1. Rocket: Central axis as rocket booster

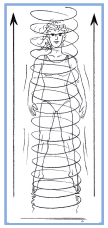

Figure 2. Spring: Whole body as a spring

Figure 3. Sand: Feet stretching into the sand

Figure 4. Spine: Spinal curves lengthening

Imagery Categories

	Imagery category	Spatial configuration of image	Body part initiation of image	Population expected to achieve best outcomes	Hypothesized outcomes
Whole body is a spring	Metaphorical	Inner	Global: Whole body	More advanced dancers	Energized rebounding so jumps will feel effortless
Central axis is a rocket booster	Metaphorical	Inner to outer	Precise: Proximal to distal	More advanced dancers	A strong force that will result in high jumps
Feet stretching into the sand	Anatomical-metaphorical	Inner to outer	Precise: Distal	All dancers, including beginners	Improved alignment and quick foot control making jumps feel lighter resulting in higher jumps
Spinal curves lengthening and deepening	Biological-anatomical	Inner	Precise: Proximal	All dancers, including beginners	Improved plié preparation and aligned long spine during jumps resulting in higher jumps with improved alignment

Table 1. Images, classifications, and hypothesized outcomes

Hypotheses

During a jump, optimal dynamic alignment generates forces necessary to continue sending the body higher. The image that produces the best alignment in the air will also be the image that produces the highest jumps for each dancer.

1) Images with "inner to outer" spatial configuration or "proximal" initiation support higher jumps; therefore, the best jumps should follow the "Rocket" image, and the least improved jumps should follow the "Spring" image.

2) More advanced dancers will respond best to the metaphor of "Central axis as rocket booster" due to all classifications being optimal for jumping.

3) Beginning dancers will preferentially respond to anatomical imagery ("Feet stretching into the sand" and "Spinal curves lengthening and deepening").

Methods & Materials

Participants

Ballet teachers were asked to recommend dancers who struggle with jump height or alignment with their jumps in their ballet classes. Thirteen female and two male college dance majors gave written consent for participation in this study.

Materials

Visual markers were placed on the subacromial space, greater trochanter, center of the patella, and the second metatarsophalangeal joint. Jump height was calculated using motion analyzer software (Logger Pro, Vernier, Beaverton, OR, USA) after filming dancers with a mini digital video camera (Canon XL1S, Tokyo, Japan).

Figure 5. Student jumping while imaging "body as a coiled spring"

Protocol

Dancers performed 18 jumps with their arms *en bas* during each of ten visits (Fig. 5). A baseline jump height was obtained, sans intervention, during the first two meetings. Over the remaining eight visits, each of the four images was chosen randomly and given to the dancer before jumping. Vertical displacement profiles (Fig. 6) were analyzed to obtain the height of each jump. For each dancer, all jump heights for a particular type of session (Baseline, Rocket, Spring, Sand, or Spine) were averaged together to produce a single reported jump height. "Change from baseline" heights were then produced by subtracting the Baseline jump height for each dancer.

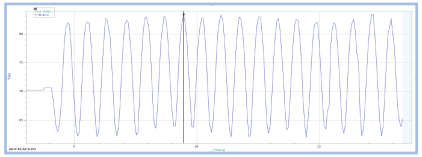

Figure 6. Example output from motion analyzer software showing measured height over time during 18 jumps

Results

Most subjects showed an increase in jump height following each intervention (Fig. 7). To assess whether the mean change in jump height was significantly different from zero, we used a one-sample t-test within each intervention group (Table 2). Both the "Rocket" and "Spring" interventions showed a significant increase from Baseline jumping height (an increase of 1.58 and 1.36 inches, respectively, over Baseline levels) at the standard 5% level of significance. There were also sub-significant but noteworthy increases for the remaining "Spine" (1.13 inches over baseline) and "Sand" (1.06 inches over baseline) image interventions.

Intervention	n	Mean ± SE Change from Baseline (in.)	95% CI [a]	p-value [b]
Spine	**13**	**1.13 ± 0.56**	**[-0.08, 2.35]**	**0.07**
Beg.	*7*	*2.22 ± 0.68*	*[0.57, 3.87]*	*0.02* **
Adv.	*6*	*-0.13 ± 0.62*	*[-1.73, 1.46]*	*0.84*
Rocket	**13**	**1.58 ± 0.55**	**[0.38, 2.77]**	**0.01** **
Beg.	*7*	*2.26 ± 0.70*	*[0.55, 3.98]*	*0.02* **
Adv.	*6*	*0.77 ± 0.80*	*[-1.28, 2.83]*	*0.38*
Spring	**12**	**1.36 ± 0.58**	**[0.08, 2.64]**	**0.04** **
Beg.	*6*	*2.09 ± 0.74*	*[0.18, 4.00]*	*0.04* **
Adv.	*6*	*0.63 ± 0.85*	*[-1.55, 2.82]*	*0.49*
Sand	**12**	**1.06 ± 0.66**	**[-0.39, 2.51]**	**0.14**
Beg.	*6*	*2.60 ± 0.66*	*[0.90, 4.29]*	*0.01* **
Adv.	*6*	*-0.48 ± 0.73*	*[-2.35, 1.39]*	*0.54*

[a] 95% CI: 95% Confidence Interval for the true value of the mean change from baseline
[b] p-value: Probability of observing these data if no true change existed

Table 2. Results of one-sample t-tests for each intervention, subdivided by experience level

Within each intervention, we subdivided the dancers into "Beginning" and "Intermediate/Advanced" groups based upon number of years of experience as well as independent ratings by college faculty. Beginning dancers showed statistically significant increases in jump height over Baseline following all four interventions. The advanced dancers showed marginal increases in mean jump height following the Rocket and Spring interventions, and slight decreases following the Spine and Sand interventions (none of these reached statistical significance). An examination of individual changes in jump height following each intervention (Fig. 7) shows comparable variation in each group, with changes ranging from approximately -3 to +6 inches from Baseline.

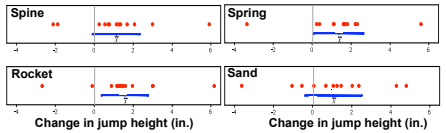

Figure 7. Changes in jump height: Individual values (red dots), group mean (x), and 95% confidence interval for group mean (blue bars)

Conclusions

- For all dancers, the "Rocket" image (which combines both "inner to outer" spatial configuration and "proximal initiation") induced the largest increase in jump height. The intervention with the least increase was the "Sand" image.
- For beginning dancers, "Rocket" produced the highest jumps; the intervention with the least increase was "Spring," which lacks both properties of the "Rocket" image.
- Beginning dancers were positively affected by the "Spine" and "Sand" images, while the intermediate/advanced dancers were not, thus supporting the hypothesis that beginning dancers will preferentially respond to anatomical imagery.

Bibliography

Franklin, E. 2003. *Pelvic Power: Mind/Body Exercises for Strength, Flexibility, Posture, and Balance for Men and Women*. Princeton, NJ: Princeton Book Co.

Franklin, E. 2003. *Conditioning for Dance*. Champaign, IL: Human Kinetics.

Franklin, E. 1996. *Dynamic Alignment Through Imagery*. Champaign, IL: Human Kinetics.

Franklin, E. 1996. *Dance Imagery for Technique and Performance*. Champaign, IL: Human Kinetics.

Franklin, E. 2006. *Inner Focus, Outer Strength: Using Imagery and Exercise for Health, Strength and Beauty*. Princeton, NJ: Princeton Book Co.

This project was supported in part by a Faculty Research Grant of the College of Communication and Fine Arts of Loyola Marymount University.