

12 WEEK PRESEASON STRENGTH TRAINING PROGRAM

OVERVIEW

The 12 week preseason strength training program for the junior level vault competitor is based on the assumption the athletes have already completed an off-season general strength and conditioning program. The preseason program is based on three 4 week phases with the training goals of establishing specific strength in phase one, the strength to power transition in phase two, and the development of sport specific power in phase three. The periodized program uses a variety of strength training modalities including the use of weights, isometrics, plyometrics, flexibility, and specific sport related drills planned for the last phase of the training period, (see Table 1 for entire 12 week program).

Good

WEIGHT TRAINING

The use of weights throughout the three phases of the pre-season conditioning program is based on the classroom recommendations of initial heavy resistance, (high force) and slow velocity with the purpose of building hypertrophy in sport specific muscle groups. High force tapers through the second phase to lighter resistance, and a slower velocity. Finally, the last phase encourages explosive concentric contractions in sport specific movements to enhance power and neuromuscular recruitment (high velocity, low force). Each four week phase addresses the overload principle in terms of progressing the weight load during the week and tapering slightly at the end of the week. The resistance exercises selected, as closely as possible, mimic the muscular actions used in the vault. Additional exercises are also included to supplement the weight room work and are based on the same premise of strength and hypertrophy building to explosive power and velocity.

PLYOMETRICS

In the textbook, Plyometrics: Explosive Power Training, authors Radcliffe and Farentinos encourage the use of plyometric training to increase explosive speed and power. The premise of this type of training is based on two phases of a muscle action, namely the “yielding phase” and the “overcoming phase”, (Radcliffe and Farentinos, 8). Plyometric training attempts to “...reduce

the time needed for this change in direction..." (Radcliffe and Farentinos, 9). With respect to the vault, plyometric training can specifically enhance the performance time in three key areas critical to maximum vault scoring. The three crucial points where plyometric training can benefit the gymnast the most are the take-off from the springboard, the handstand push-off the horse, and the landing. All three areas require explosive power at fast velocities and training developed to shorten the time between the "yielding" and the "overcoming" part of each of these movements would enhance vaulting performance.

→ he is husband - now - of Janice Lettunich - who wrote our diving paper!

The introduction to plyometric training in the 12 week preseason conditioning program logically commences in the strength-power transitional time period in phase two. The plyometric training begins with the most simple drills such as bounding. The drill complexity continually progresses over the next several weeks to include jumps off and onto boxes. Authors Radcliffe and Farentinos illustrate numerous drills, several of which have been selected for use in this training program and are directly applicable to the vault, (see Appendix A). Specificity of training and injury prevention includes the use of mats in drills requiring depth jumps. Additional specificity has been incorporated by using actual springboards for selected jumping drills.

The use of plyometric drills, although an important part of training for explosive strength and power, involves an element of risk in terms of injury. Considering the high probability of overuse stress injuries during the competitive season, the use of plyometric training in vault conditioning incorporates the minimum number of recommended sets and repetitions for each drill. Also, the suggestion given in the book for using higher platforms to increase overload is not used as a training method for vaulting gymnasts.

FLEXIBILITY

In the book entitled, Gymnastics for Girls and Women, the author emphasizes the importance of flexibility in gymnastic athletes in terms of increasing the ability to perform various skills with ease, (Carpenter, 15). The author continues by stating that flexibility is joint specific and an effective conditioning program for the gymnast must include static stretches for the entire body, (Carpenter, 24). The preseason conditioning program includes the use of general body PNF stretches after the initial warm-up. Stretching is also used at the end of the work out to focus on the development of flexibility in specific critical areas such as the hamstrings, hip flexors,

- in vault

ankle dorsi flexors, lumbar back, and shoulders.

SPECIALIZED SPORT SPECIFIC DRILLS

The actual time of the entire vaulting event is only three to five seconds which eliminates the use of aerobic and anaerobic training in the conditioning plan. On the other hand, as previously mentioned, the sprint approach is one of the key elements in terms of initiating the required velocity to power the athlete through the vaulting event. Considering the importance of the approach, light conditioning using specific short sprints are necessary in addressing this phase of the vault.

The incorporation and progression of sprinting drills begins in the first four weeks of the 12 week plan using distances of 30 meters and “overloading” the athlete by using a small parachute attached to the gymnast’s back. Sprint training continues through the second four week period with the use of five to ten meter run throughs that encourage quickness and power without any resistance. Finally, the last four weeks of the training program utilize the sprint in a specific and precise approach with a springboard target. Focus is on the exact stride and steps necessary to land at the appropriate point on the spring board at the conclusion of each sprint.

In addition to sprinting drills, specialized exercises are taken to the gymnastics floor involving the use of springboard dives onto the mat, depth jumps off the horse, and handstand pushups on the horse with the use of spotters. *important*

CONCLUSION

The actual vaulting event is exhilarating to watch as gymnasts propel their bodies in twists and turns, defying the forces of gravity. Despite the aesthetic beauty and gracefulness of the sport, however, the vault is truly a complex and intricate activity. In designing a strength training program for the basic junior level gymnast using the fundamental handspring vault, it is necessary to analyze the muscular actions used through various phases of the event. The focus of the training program developed herein uses a variety of resistance and power drills designed to enhance the explosive power and control crucial to vaulting success. Through the use of the 12 week preseason plan, the gymnast will develop motor performance necessary to propel their vaulting success to maximum amplitudes.

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Table 1
12-week Preseason Conditioning Program
Gymnastics Vault ✓

	Phase 1	Phase 2	Phase 3
Goals:	Base of specific strength	Strength-power transition	Strength -specific power
Duration:	4 weeks	4 weeks	4 weeks
Days/week:	MWF weights T/T isometrics	MWF weights T/T isometrics and plyometrics	MWF weights T/T isometrics and plyometrics S sport specific drills
Warm up:	General warm- up PNF stretches	General warm-up PNF stretches	General warm-up PNF stretches
Isometrics:	Prone back hyperextensions 15x5 sec Heel raises 15x5 sec Seated "V" 15x5 sec Roman chair supine layouts 10x5 sec Dorsal Flexion 15x5	Prone back hyperextensions 15x5 sec (10 lbs) Heel raises 15x5 sec (20 lbs) Seated "V" 15x5 sec (10 lbs) Roman chair layouts 15x5 sec Dorsal Flexion 15x5	Prone back hyperext. 10x5 sec (15 lbs) Heel raises 10x5 sec (25) Seated "V" 10x5 sec (15) Roman chair layouts 15x5 sec Dorsal Flexion 15x5
Variation:	Week 1 and 3 resistance using 10 to 15 pound weights Week 2 and 4 resistance using Partner	Week 1 and 3 resistance using Partner Week 2 and 4 resistance using 15 to 20 pound weights	Week 1 and 3 resistance using 15 to 20 lbs Week 2 and 4 resistance using partner ✓
Weightroom:	Dead lift 3s x 3 Incline press Behind neck press Back squats Leg press Walking lunges Calf raises (machine)	High pull 3s x 3 Dead lift 3s x 3 Incline press Behind the neck press Back Squats Walking lunges Calf raises (machine)	High pull 2s x 3 Dead lift 2s x 3 Power clean 2s x 3 Incline press Behind the neck press Walking lunges Calf raises (machine)
Sets/ reps:	week 1 3s x 8 RM week 2 4s x 8, 6, 4 RM week 3 4s x 6, 5, 5, 3 RM week 4 3s x 6, 5, 3 RM	week 1 4s x 6, 6, 4 RM week 2 4s x 6, 5, 4, 2 RM week 3 3s x 8 RM week 4 3s x 10 RM	week 1 3s x 8 RM week 2 3s x 10 RM week 3 3s x 10 RM week 4 3s x 8 RM
Speed:	Slow and controlled 2 minute rest	first 2 weeks slow velocity second 2 weeks moderate	fast velocity (emphasis on explosive concentric movements)
Rest:	2 minutes	2 - 3 minutes	3 minutes
Additional Exercises:	Good mornings 3 x 10(20 lbs) Roman chair back extensions 3 x 10 (20) Hanging pikes 3 x 10 (10 lbs) Handstand pushups - wall 3 x 20 (5 lb ankle weights) Fingertip pushups feet elevated at 45 degrees 3 x 10 (weight vest)	Good mornings 3 x 10 (15) Roman chair back extensions 3 x 10 (20) Hanging pikes 4 x 10 Handstand pushups - wall 3 x 15 Fingertip pushups - 45 3 x 10	Good mornings 3 x 10(10) Roman chair back ext 3 x 10 (10) Hanging pikes 3 x 10 Handstand pushups - wall 3 x 10 (hands leaving floor) Fingertip pushups - 45 3 x 10(explosive push)

Table 1 (continued)
 12-week Preseason Conditioning Program
 Gymnastics Vault

	Phase 1	Phase 2	Phase 3
Goals:	Base of specific strength	Strength - power transition	Strength-specific power
Additional Exercises (Continued):	Crunches 3s x 40 (10 lbs) Oblique Twists 2s x 50 (10 lbs) Incline Setups 2s x 25 (10 lbs)	Crunches 3s x 50 Oblique Twists 2s x 50 Incline setups 3s x 25	Crunches 3s x 40 Oblique Twists 4s x 25 Incline setups 4s x 25
Velocity:	Slow, controlled	Moderate to fast	Fast
Plyometric Drills:	none	Week 1 and 2 Double Leg Bound 3s x 8 Alternate Leg Bound 3s x 8 Vertical Swing 3s x 10 (10 lb)	Week 1 and 2 Box Jump 3s x 6 Quick Leap 12" box 3s x 6 Medicine Ball Toss 3s x 6 Depth Jump 30" boxes 3s x 6
		Week 3 and 4 Double Leg Box Bound 12" boxes 4s x 4 Incline Bound 4s x 10 Medicine Ball Sit-up Throw 4s x 8 Alternating Leg Box Bound (20" boxes) 4s x 4	Week 3 and 4 Double Leg Bound (Springboards-4) 4s x 4 Depth Jump (18 and 30" boxes) 4s leaps each leg Med Ball Sit-up Throw 6s x 8 Decline Hop 4s x 8
Rest:		1 to 2 minutes between each set	1 to 2 minutes between each set
Sport Specific Drills:	30 meter sprints with parachute 10x 3 minutes rest	5 - 10 meter sprints no resistance all out effort 10x 3 minutes rest	Week 1 Springboard bounds onto mat 2sx6 Week 2 3 step approach with hurdle and springboard take-off (20) Week 3 3 step approach with hurdle and springboard take-off (10) 20 foot sprint approach and take-off (10) Week 4 20 foot sprint and take-off (10) 45 foot sprint and take-off (10) Jumps off horse onto mat (10) Handstand push-ups on horse with spotter 3s x 10

Table 1 (continued)
12-week Preseason Conditioning Program
Gymnastics Vault

Additional Training Program Notes:

Flexibility Developmental stretches must be done at the end of each workout to include:
Shoulder abduction, rotation, and flexion
Back rotation, lateral flexion, and flexion
Calf involving the gastrocnemius and soleus
Hamstring and Quadriceps
Hip flexion and extension
Ankle dorsiflexors
Each stretch should be taken to the point and "gentle tension" and held for 15 to 20 seconds.

Body Fat Analysis tests are done at the end of each training phase (about every three months). Comparisons are made to previous measurements and specific recommendations are made for each individual based on those findings.

Careful

Kim,

Good sound program. Well written and researched. I learned a few things.

EC

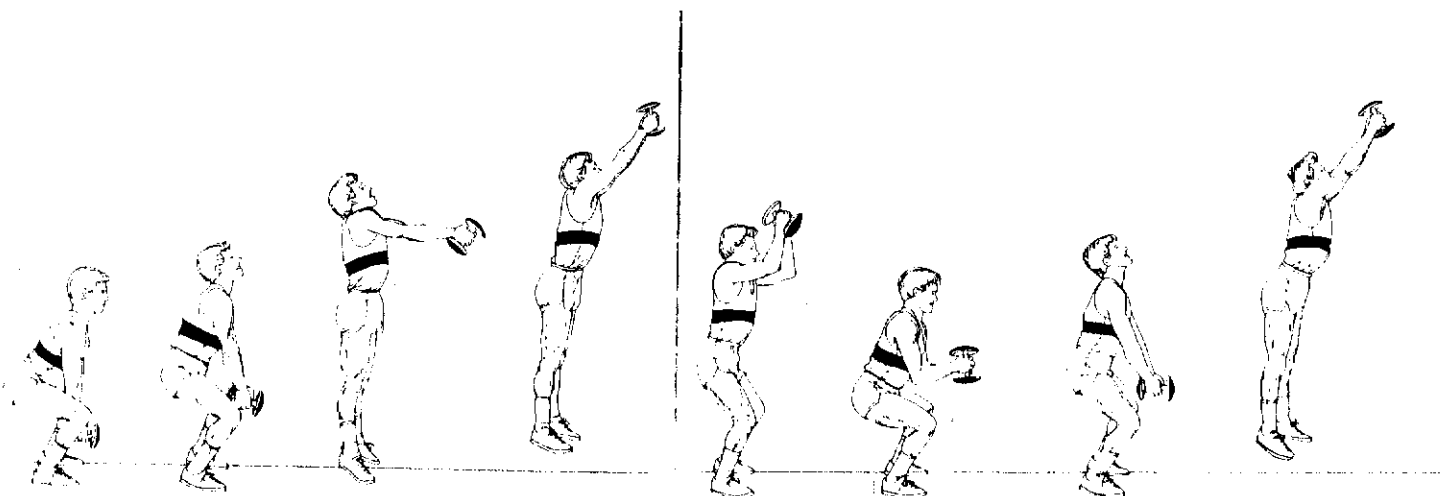
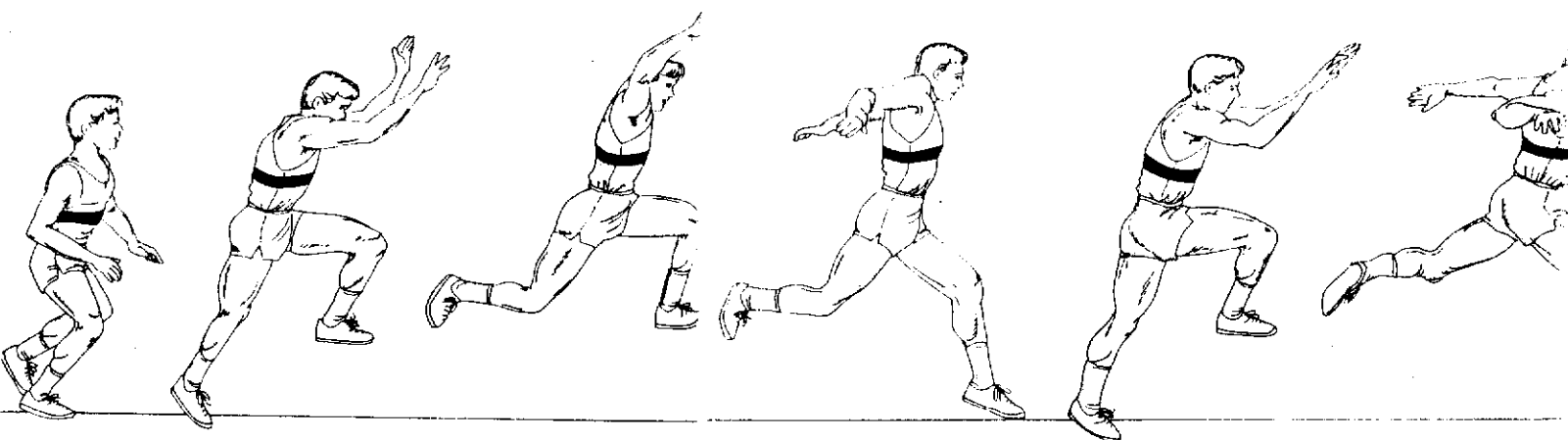
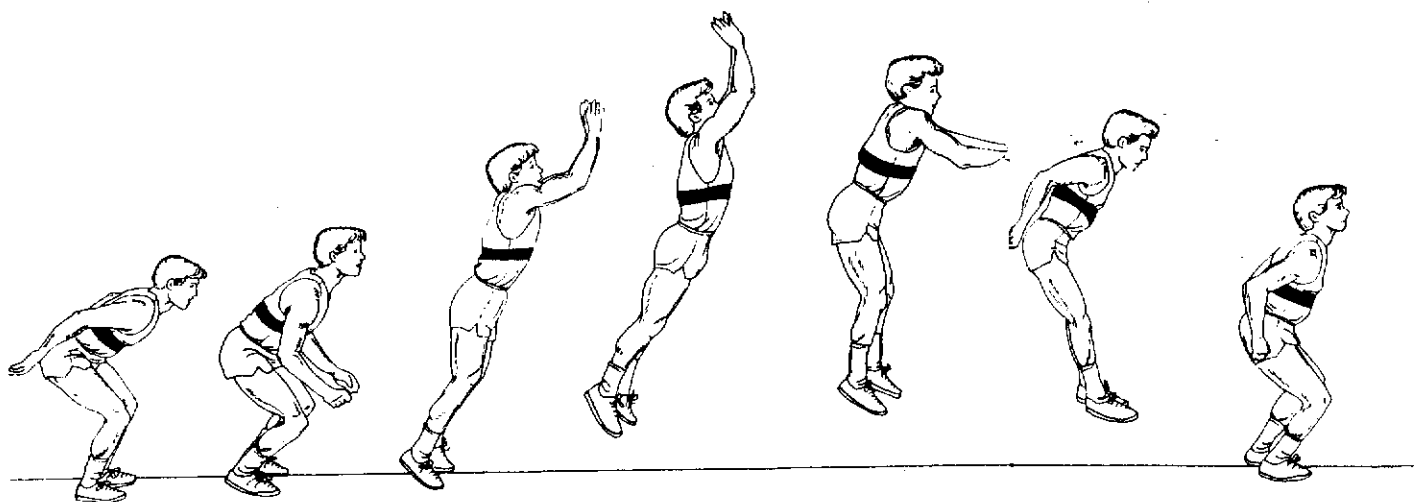
Grade A

APPENDIX A

Selected Plyometric Drills

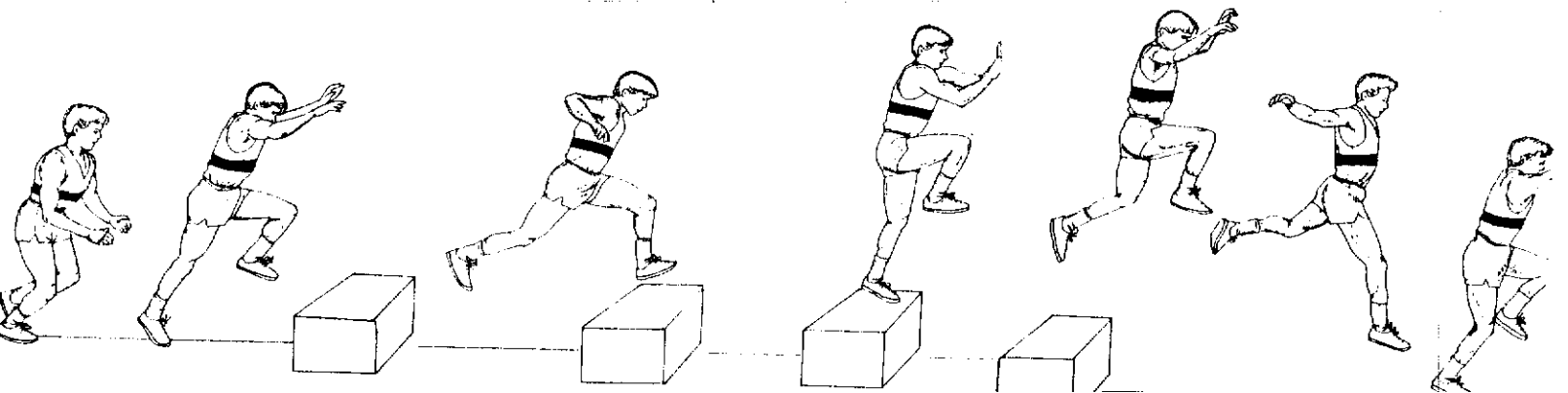
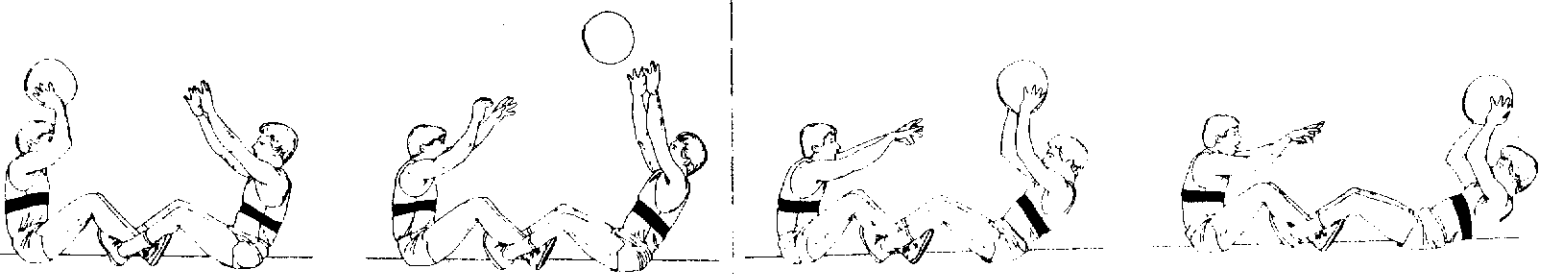
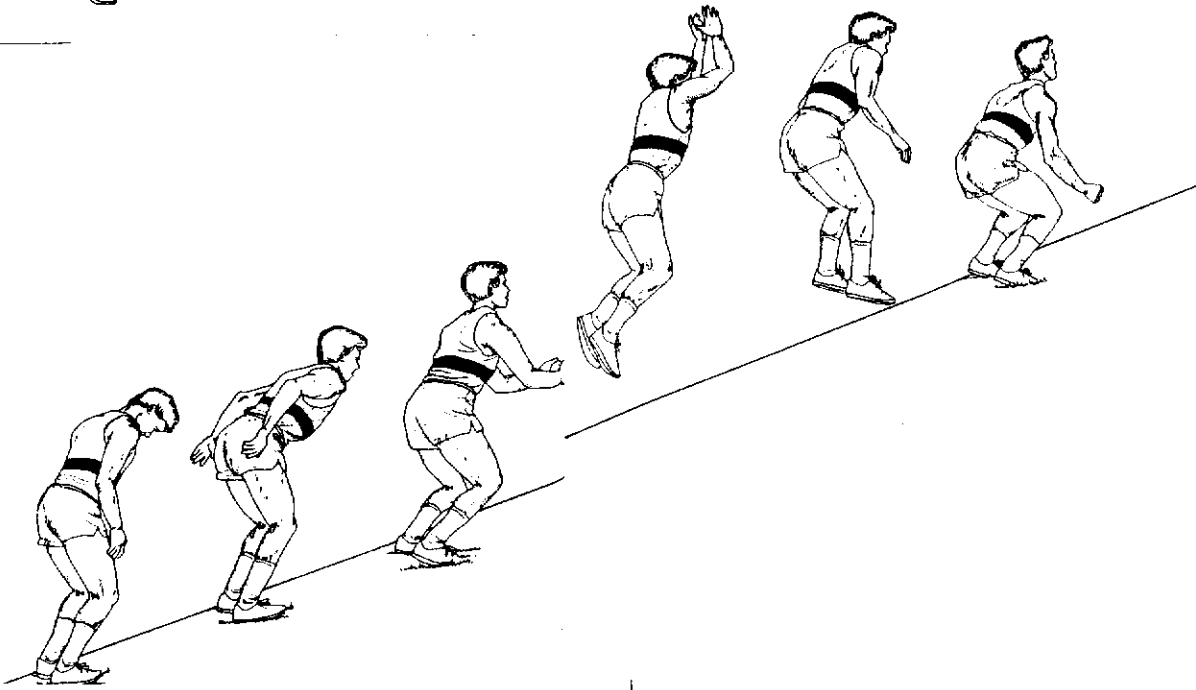
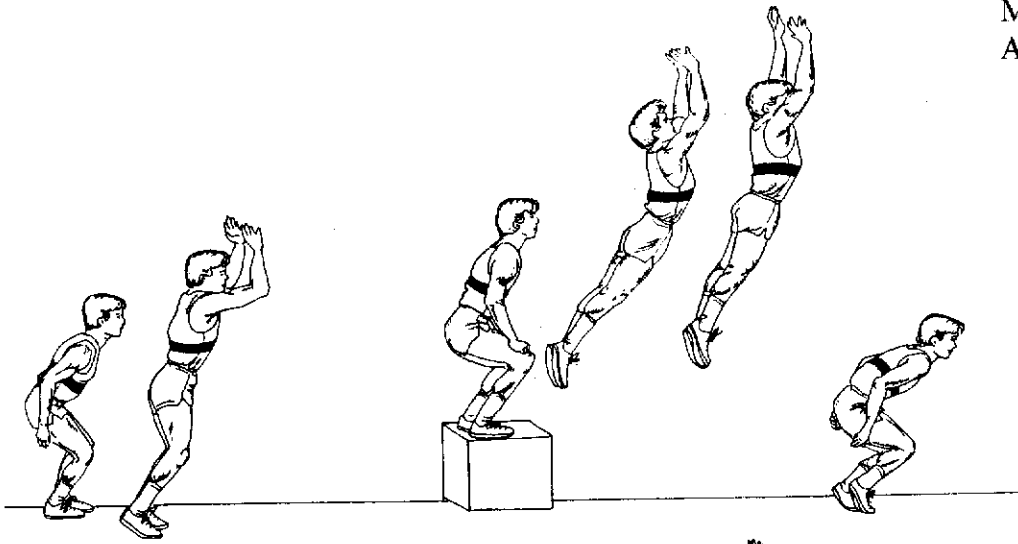
PHASE 2
Weeks 1 and 2

Double Leg Bound
Alternate Leg Bound
Vertical Swing



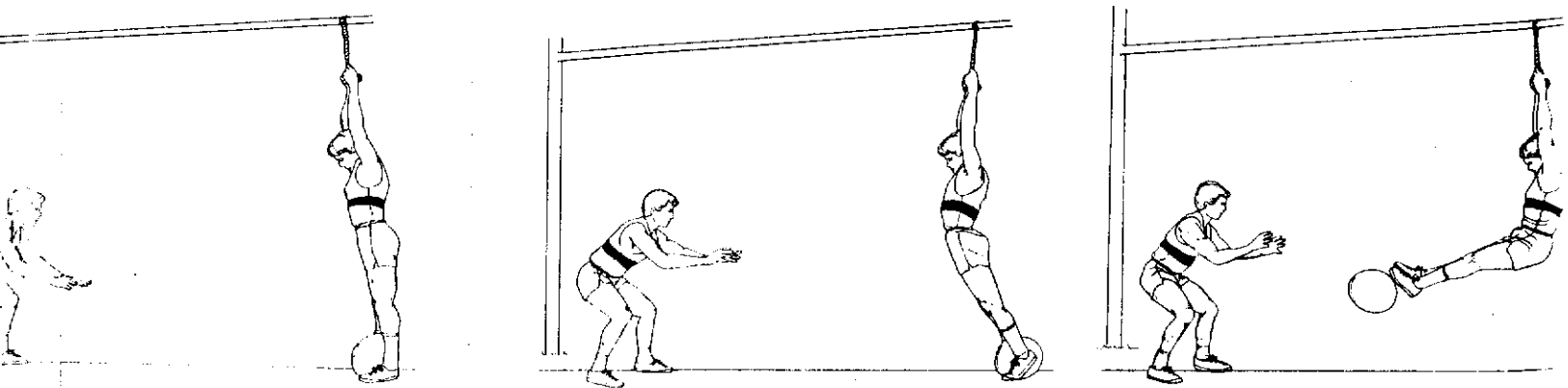
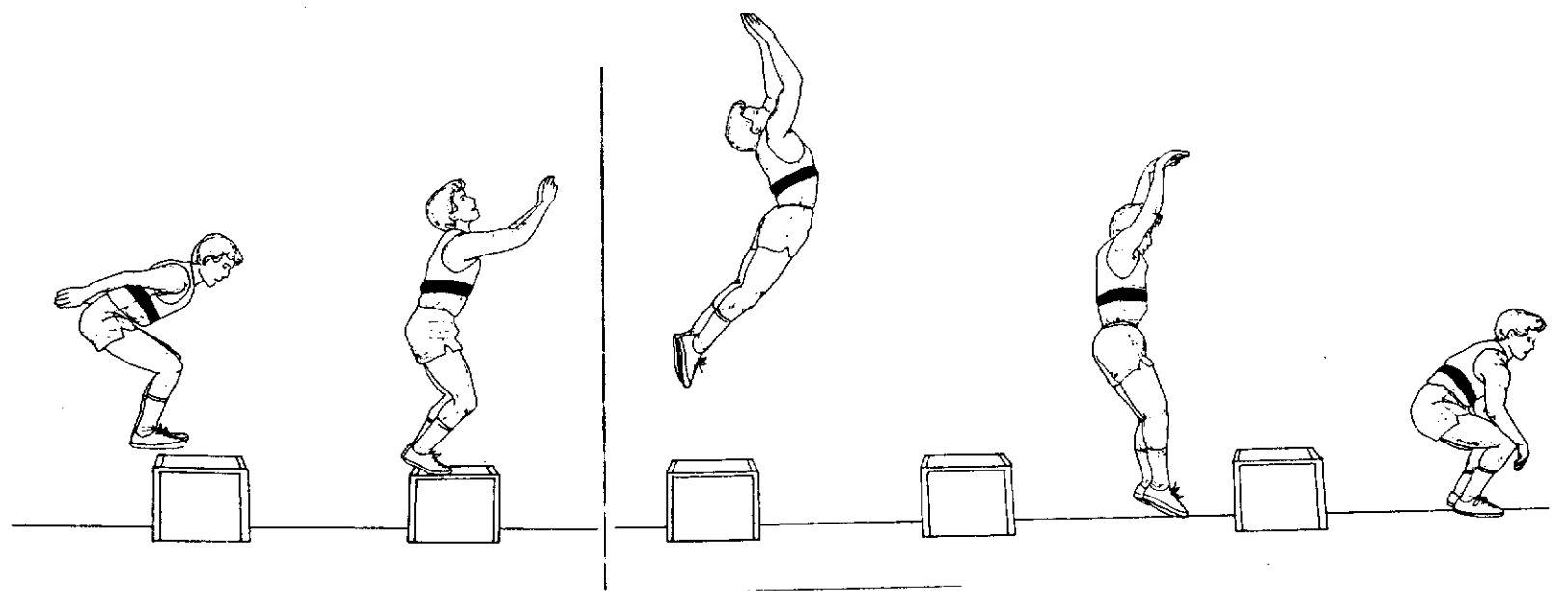
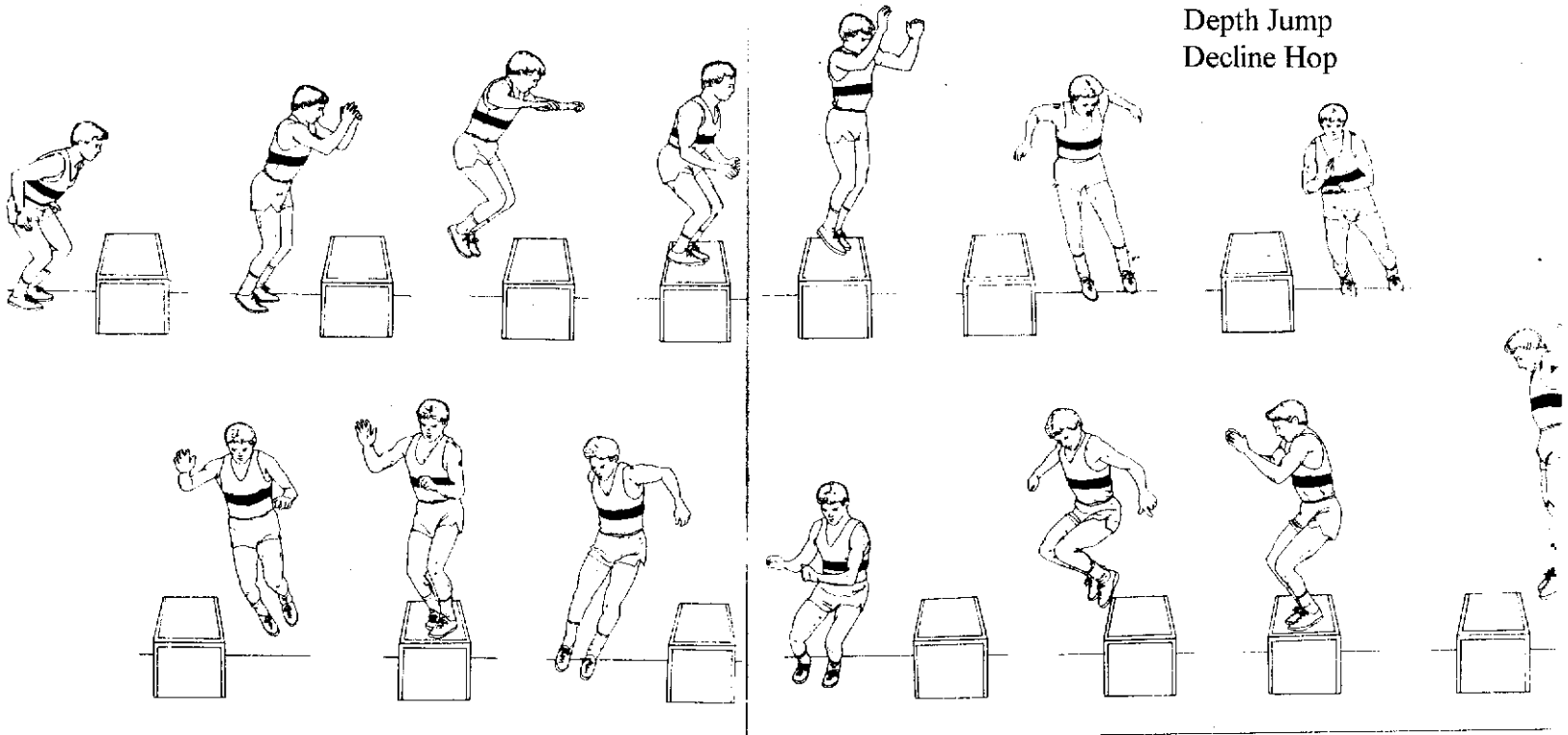
PHASE 2
Weeks 3 and 4

- Double Leg Box Bound
- Incline Bound
- Medicine Ball Sit-up Throw
- Alternating Leg Box Bound



PHASE 3
Weeks 1 - 4

- Box Jump
- Quick Leap
- Medicine Ball Toss
- Depth Jump
- Decline Hop



PHASE 3
Weeks 1 - 4
(continued)

