

PROGRAMMING & ORGANIZATION



OF STRENGTH TRAINING FOR ATHLETES

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PROGRAM DESIGN

RULE # 1

KEEP IT SIMPLE

GETTING STARTED

Determining Factors in Program Design

Optimal Training

vs.

Real World Training

Which one works for you?

GETTING STARTED

- **Determining Factors in Program Design**

Weight Room Size: (Useable Square Footage)

What you want to accomplish/What you can accomplish?

Equipment Availability:

What you have/What you need?

How many athletes can you train at one time?

Age and training maturity of athletes?

Determining Factors in Program Design

Time Constraints are always an issue no matter what level you coach at.

Know how long the workout takes and be realistic when designing programs.

Equip your weight room with equipment that allows you to train a group of athletes effectively and efficiently.

Unorganized Weight Room



Get Organized



Unorganized Weight Room



Get Organized



PROGRAM DESIGN TOP TO BOTTOM

- A) General Warm Up
- B) Torso Training
- C) Specific Warm Up
- D) Olympic / Explosive Movements
- E) Multi-Joint Strength Movements
- F) Unilateral Lower / Upper Body Movements
- G) Make sure you have equal volume for Pressing / Pulling Movements as well as for Hip / Leg Push Movements and Hip Ext. Movements.
- H) Pre-habilitation Movements

PROGRAM DESIGN FOR STRENGTH TRAINING

• General Warm Up

PRE-STRENGTH TRAINING (IN WEIGHT ROOM)

• **GENERAL WARM UP:** The general warm up must involve as many large muscles and joints as possible. It should stimulate your blood flow, raise the temperature of deep muscle tissue, and loosen supportive tissue in your joints. The general warm up will improve your focus and performance during training, as well as prevent injury.

• **JUMP ROPE** – Two Feet, One Foot, Alternating Feet, etc. All done for time, 30 – 60 sec. each. Use different drills that total 3 to 5 minutes for time.

• **SPEED LADDERS** – Linear, Lateral - Two Feet, One Foot, Hops etc. Two reps of each movement. Choose five to ten different movements for a warm-up.

• **HURDLE MOBILITY** – Use Five or Six Hurdles for mobility drills, choose three to five different movements, go through each movement twice. Over; Over and Under; etc.

• **MEDICINE BALL** – Use Medicine ball as warm-up and/or for Torso Training.

For Warm Up: Use Med Ball in a Dynamic manner. Giant Circles, Good Mornings, Russian Twist, Squats, Overhead Side Bends, Overhead Squats, Lunges, ect. Medicine Ball Warm-up is great because it also incorporates the upper body.

• **DYNAMIC MOVEMENT** – This will depend on space available and size of group. Dynamic Movement through a full range of motion, can be done standing in a stationary space using dynamic movements such as spiderman, iron cross, stationary lunges, leg swings, pogo jumps, straight leg lifts, (Stationary Dynamic Drills).

PROGRAM DESIGN FOR STRENGTH TRAINING

- **Torso Training (Core)**

Strengthening the torso is paramount in improving physical performance.

Developing a strong torso prevents injuries, increases body control and enhances execution of core lifting exercises, thus improving performance during competition.

We include a comprehensive torso program that addresses five dimensions of movement on a daily basis.

PROGRAM DESIGN FOR STRENGTH TRAINING

- **Torso: Five Dimensions of Movement**
 - **Flexion**
 - **Extension**
 - **Lateral Flexion**
 - **Rotation**
 - **Stabilization**

PROGRAM DESIGN FOR STRENGTH TRAINING

- Specific Warm Up

SPECIFIC WARM UP: “The second portion of the warm up, is often overlooked despite its immediate benefit to your physical training. Specific warm up resembles the training activity, and is sometimes called preliminary practice. This preliminary practice conditions your muscles so they work in an appropriate fashion and at an appropriate time. During specific warm-up, you are reviewing the sensory cues which activate complex coordination of muscles and joints. The more complex the movement you wish to practice, the greater the benefit from specific warm-up”.

Vern Gambetta

PROGRAM DESIGN FOR STRENGTH TRAINING

Specific Warm Up Examples: Bar Complex w/empty bar

Clean Complex

- Clean Grip High Pull
- Clean Grip Muscle Snatch
- Squat to a Press
- Good Morning
- Bent Over Row

Snatch Complex

- Snatch Grip High Pull
- Snatch Grip Muscle Snatch
- Snatch Grip Press
- Overhead Squat
- Snatch Grip RDL

Use 1 set of 3 – 6 reps for each movement within the complex for Specific Warm Up

*Remember Warm Up, Don't Wear Out.

PROGRAM DESIGN FOR STRENGTH TRAINING

Specific Warm Up Examples: Bar Complex w/empty bar

Clean Complex



Video

Snatch Complex



Video

PROGRAM DESIGN FOR STRENGTH TRAINING

- Power before Strength

Olympic/Explosive Movements First

-High CNS involvement, Highly technical.

-Olympic Lifting is a functional training method that develops power and athleticism in athletes.

-Never more than 5 reps/set.

-More than 5 reps/set will lead to technical breakdown, decrease in force production and a decrease in the rate of force production.

PROGRAM DESIGN FOR STRENGTH TRAINING

Olympic Movements allow for great transfer from training...



PROGRAM DESIGN FOR STRENGTH TRAINING

...TO PERFORMANCE



PROGRAM DESIGN FOR STRENGTH TRAINING

Remember we are training Athletes
not Olympic Lifters....

Use Olympic movements as a means
to an end, not an end within itself.

PROGRAM DESIGN FOR STRENGTH TRAINING

- If you can't teach/don't want to use Olympic Movements, use Medicine Ball throws and Explosive Jumps in place of/in addition to Olympic Movements for your Explosive development.

Kneeling Med Ball Throws



Video

Standing Long Jumps



Video

PROGRAM DESIGN FOR STRENGTH TRAINING

● Ground Based/Multi-Joint Strength Movements

-Movements that are performed with the athlete's feet on the ground are more productive than movements performed while sitting or lying down.

-Training with your feet on the ground requires the athlete to stabilize their own body structure which in turn increases proprioception and strengthens stabilization muscles reducing the risk of injury.

-Movements that work more than one joint at a time are the most productive for athletes.

-Athletic skills require multiple joint actions timed in the proper neuromuscular recruitment patterns.

PROGRAM DESIGN FOR STRENGTH TRAINING

- Ground Based/Multi-Joint Strength Movements cont.
-Three Dimensional Movements

Athletic skills involve movement in three planes simultaneously:

-side to side

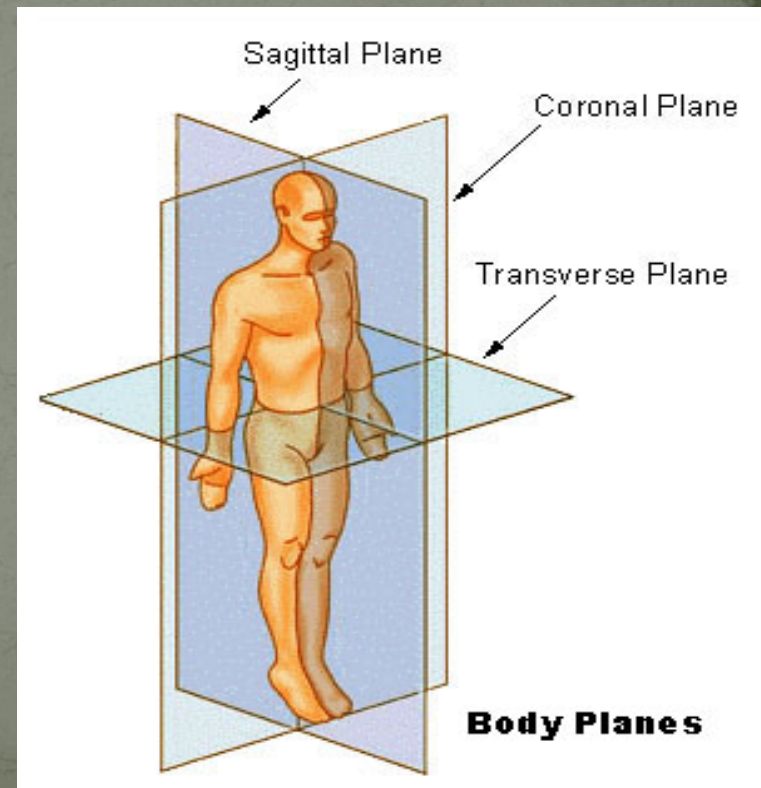
-up and down

-forward and backward

We must develop functional strength in all three planes.

This can only be done with

FREE WEIGHTS!



PROGRAM DESIGN FOR STRENGTH TRAINING

- **Unilateral Lower Body Strength Movements**

-Single Leg Strength Development is one of the most important factors to improving athletic performance and injury prevention.

-Double Leg Strength does not translate into single leg strength if the athlete is untrained in single leg strength movements.

-Single Leg Movements force gluteus muscles and pelvic stabilizers to work independently compared to a double leg movement.

PROGRAM DESIGN FOR STRENGTH TRAINING

- Single Leg Strength Progression

Split Squat



Single Leg Bench Squat



Single Leg Squat



Use each movement 2 – 3 weeks before progressing to the next movement. Always start with the most stable single leg movements before progressing to more advanced unstable movements.

PROGRAM DESIGN FOR STRENGTH TRAINING

- Checks and Balances Prevent Imbalances

When designing strength programs **CHECK** to make sure you have an equal **BALANCE** of training volume for:

- Pressing/Pulling Movements

- Hip Leg Push/Hip Extension Movements

to prevent **IMBALANCES**

PROGRAM DESIGN FOR STRENGTH TRAINING

- **Prehab/Rehab Work (Post Work)**

- Focus on individual athlete's needs
- Each athlete will have different needs that have to be addressed due to past/present injuries/overuse.

Ankle, Knee, Hip, Pelvic, Low Back, Extra Torso work, Shoulder, Elbow, Wrist, Flexibility

- Find what each athlete needs and set up the Prehab/Rehab program to meet those needs.
- Example:** Thrower's Program Post Lift/Post Throwing.
Prehab/Restoration

GETTING STARTED

DEVELOP A TRAINING TEMPLATE WITH WHAT YOU WANT TO ACCOMPLISH EACH WEEK.

A TRAINING TEMPLATE IS A GENERAL LAYOUT OF MOVEMENTS YOU WANT TO ACCOMPLISH EACH TRAINING SESSION.

HAVE A TRAINING TEMPLATE FOR BOTH OFF-SEASON TRAINING AND IN-SEASON TRAINING.

Putting it all Together

- **Designing Training Templates**

-Five Movements per Day: 1 Explosive Movement and 2 Pairs
Movements can be paired with the exception of Olympic Lifts

-Pairing of Exercises allows us to complete a larger volume of work in a shorter period of time.

The optimum total time involved in a training session should not exceed one hour. After one hour hormonal depletion occurs. It is our objective is to complete our warm up and training sessions in one hour. In addition, research shows that a minimum of three minutes is needed to recover from a heavy set of exercise for maximum strength gains. With these two thoughts in mind, we will incorporate pairing techniques in order to maximize rest intervals and also complete our workout in the allotted time period. When pairing we execute an upper body exercise followed by a ninety second rest interval. After the rest interval we execute a lower body exercise followed by an additional ninety second rest interval. Thus, we create a full three minute rest between heavy sets. This allows us the ability to maximize rest intervals and complete the desired amount of working sets within the hour time period for the session. **We will never pair explosive movements, always allowing for maximum recovery between explosive lifts.**

Training Templates

- 4 Day Training Template

DAY 1	DAY 2		DAY 3	DAY 4
Explosive Movement	Explosive Movement		Explosive Movement	Explosive Movement
Pair 1	Pair 1		Pair 1	Pair 1
Double Leg Push	Horizontal Press		Double Leg Push Variation	Horizontal Press Variation
Vertical Pull	Straight Leg Hip Extension		Vertical Pull Variation	Straight Leg Hip Extension
Pair 2	Pair 2		Pair 2	Pair 2
Single Leg Push	Vertical Press		Single Leg Push	Vertical Press Variation
Horizontal Pull	Bent Leg Hip Extension		Horizontal Pull	Bent Leg Hip Extension
Post Work	Post Work		Post Work	Post Work

Training Templates

- 3 Day Training Template

DAY 1	DAY 2		DAY 3
Explosive Movement	Explosive Movement		Explosive Movement
Pair 1	Pair 1		Pair 1
Double Leg Push	Horizontal Press		Double/Single Leg Push Variation
Vertical Pull	Straight Leg Hip Extension		Vertical/Horizontal Pull Variation
Pair 2	Pair 2		Pair 2
Single Leg Push	Vertical Press		Horizontal/Vertical Press
Horizontal Pull	Bent Leg Hip Extension		Straight/Bent Leg Hip Extension
Post Work	Post Work		Post Work

Training Templates

- 2 Day Training Template

DAY 1		DAY 2
Explosive Movement		Explosive Movement
Pair 1		Pair 1
Double Leg Push		Horizontal Press
Vertical Pull		Straight Leg Hip Extension
Pair 2		Pair 2
Vertical Press		Single Leg Push
Bent Leg Hip Extension		Horizontal Pull
Post Work		Post Work

What Does It Look Like?

Sample 4 Day Training Template

Monday	Tuesday		Thursday	Friday
Hang Snatch	Hang Clean		Front Push Jerk	Hang Clean & Jerk
Pair 1	Pair 1		Pair 1	Pair 1
Back Squat	Bench Press		Dead Lift	Bar Incline Bench Press
Pull Ups (overhand grip)	Clean Grip RDL		Chin Ups (underhand grip)	Pause Back Extensions
Pair 2	Pair 2		Pair 2	Pair 2
DB Split Squat	Bar Overhead Press		DB Step Ups	DB Alt. Overhead Press
One Arm DB Row	Glute-Ham Raise		Barbell B.O. Row (overhand grip)	Stability Ball Hip Ext. & Curl
Post Work	Post Work		Post Work	Post Work

Training Templates

- **Modify Training Templates**
- **Qualitative – Change the Exercises**
 - Plug new exercises into the template every 2 to 3 weeks.
 - Vary movements without changing the type of movement itself.
- **Quantitative – Change the Training Loads**
 - Each phase of training should be 2 – 3 weeks.
 - Each phase the training volume and intensity should change. -Remember Everything Works But Nothing Works Forever.

Periodization of Training

- **Linear Periodization**

Works very well with young athletes who are in their first structured strength program. However is often too basic for advanced athletes.

	Phase 1	Intensity	Volume	Phase 2	Intensity	Volume	Phase 3	Intensity	Volume
Olympic Lifts	3-4 Sets x5 Reps	70-85%	15-20 Total Reps	4-5 Sets x3 Reps	80-90%	12-15 Total Reps	4-5 Sets x1-2 Reps	85-100%	5-10 Total Reps
Strength Lifts	3-4 Sets 8-10 Reps	60-70%	24-30 Total Reps	3-5 Sets x5 Reps	80-87.5%	15-25 Total Reps	4-6 Sets x3 Reps	90-100%	12-18 Total Reps

Each Phase will generally last 3 – 4 weeks.

Periodization of Training

- **Undulating Periodization Method**

Works well with advanced athletes. Allows the athlete to handle greater intensity earlier during the cycle. Each Phase is 2 – 3 weeks in length.

	Phase 1	Intensity	Volume	Phase 2	Intensity	Volume
Olympic Lifts	3 – 4 Sets x 5 Reps	70 – 85%	15 to 20 Total Reps	4 – 6 Sets x 3 Reps	80 – 92.5%	12 to 18 Total Reps
Strength Lifts	3 – 4 Sets x 8-10 Reps	60 – 77.5%	24 to 40 Total Reps	4 – 6 Sets x 3 Reps	85 – 92.5%	12 to 18 Total Reps

	Phase 3	Intensity	Volume	Phase 4	Intensity	Volume
Olympic Lifts	4 – 5 Sets x 5 Reps	72.5–87.5%	20 to 25 Total Reps	4 – 5 Sets x 1 - 2 Reps	90 – 100%	5 to 10 Total Reps
Strength Lifts	3 – 5 Sets x 5 Reps	80 – 87.5%	15 to 25 Total Reps	4 – 6 Sets x 1 – 2 Reps	90 – 100%	4 to 12 Total Reps

Periodization of Training

- **UNLOAD WEEKS/**

- Decrease in Training

- Frequency

- Intensity

- Volume

- Program Unload Weeks into the Annual Training Plan

- Frequency and duration of Unload Weeks will depend on the athlete's age, training maturity, physiological state and type of Periodization Plan used.

- Unload weeks must be implemented at ideal times throughout the Annual Plan in order for Supercompensation / Transmutation to take place.

Periodization of Training

- **Off-Season Strength Training is 3 or 4 Days Per Week**
- **In-Season Strength Training - My Rule of Thumb**
 - If the athlete competes only once per week we will have 3 strength training sessions per week. (With the exception of Unload Weeks).
 - If the athlete competes more than once per week we will have only 2 strength training sessions per week.

Final Thoughts

- “Our goal is to create adaptations that will have the most potential transfer to their respective sport.” Jim Smith – Chaos Training
- Everything we do inside the weight room we must be able to transfer to the field / court.

Thank You

- **Chris Doyle – Head Strength & Conditioning Coach University of Iowa Football**
- **Mike Boyle – Mike Boyle Strength & Conditioning**
- **Derek Hansen – Head Strength & Conditioning Coach – Simon Fraser University**
- **Jonas Sahratian – Strength & Conditioning Coach – Men’s Basketball University of North Carolina**