In-Season Strength Training for the High School Soccer Athlete

By Rose Baker
Why strength train?

- **Injury Prevention**
  - Through proper training and techniques it can significantly reduce the incidence and severity of common injuries and the weaknesses and imbalances that affect them.

- **Performance enhancement**
  - A structured and progressive program builds strength and power (the foundations for speed) and enables better recovery and resiliency.
Why Strength Train?

- Soccer players need aerobic fitness AND strength, speed, and power.
- Soccer is a contact sport. Athletes must be able to take hits and hold off opponents.
- Soccer players need great single leg strength and balance for performance AND injury prevention.
Building the Program

FACTORS THAT AFFECT HOW A PROGRAM IS DESIGNED AND IMPLEMENTED

- SPORT SPECIFIC DEMANDS - EXERCISE SELECTION
- PERIODIZATION AND PROGRESSION
- TRAINING SESSION SCHEDULE
- FACILITIES AND EQUIPMENT
- TRAINING “AGE”
SPORT SPECIFIC DEMANDS

- Movements utilized during sport
  - Sprinting, running, change of direction, jumping, kicking, dribbling, shooting, defending, heading, holding off opponents, tackling.
  - Goalkeeping - catching, throwing, punching, diving.

- Muscles to be trained
  - Posterior chain - hamstrings/glutes/low back/calves
  - Anterior hip/thigh - Quadriceps, Hip flexors/rotators
  - Core - Abdominals and Low back
  - Upper body - Chest, Shoulders, Back
Sports Specific Demands

- COMMON INJURIES ASSOCIATED WITH PARTICIPATION
  - ACL tears
  - Other knee ligament/cartilage injuries
    - MCL, meniscus
  - Ankle and foot sprains
  - Muscle pulls and tears
    - Hamstrings, quadriceps, hip flexors, groin
  - Lower leg syndromes
    - “Shin splints”, compartment syndrome
Sport Specific Demands
What the movements/muscles/injuries tell us:

1) Must focus on lower body strength and power (HAMSTRINGS)
   • Olympic/Explosive lifts, Posterior chain exercises, Squats

2) Must train for strength, mobility, AND stability in the lower body
   • Full range of motion, unilateral exercises, 1-leg squats

3) Must include upper body strength
   • Pushing and Pulling

4) Must connect strong limbs with a strong core
   • Total body movements, Core training, Abdominal exercises

5) Should include some balance and stability work for injury prevention and muscle coordination.
   • Unstable surfaces, single leg work, stabilizer muscle strengthening, etc.
Periodization and Progression-
In-season Considerations

• Keys to In-Season Programming
  - Use volumes and intensities that will elicit desired training effect without excessive soreness/muscle depletion that would affect match performance. Find a balance.
  - Time is scarce and valuable. So “Major on the majors, minor on the minors”
    • Also utilize supersets and complexes to accelerate your workouts and intensify the workrate.
  - Make a season-long progression, try to follow it, but be willing to adapt.
## Periodization and Progression

- **Volume (Total reps) & Intensity (weight)**

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Pre-season</th>
<th>Early-mid Season</th>
<th>Mid-Late Season</th>
<th>Post season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olympic/Explosive</td>
<td>15-20 reps 65-75% 1rm</td>
<td>12-15 reps 65-75% 1rm</td>
<td>10-12 reps 60-70% 1rm</td>
<td>6-8 reps 60-70% 1rm</td>
</tr>
<tr>
<td>Lower Body</td>
<td>20-30 reps 60-70% 1rm</td>
<td>15-25 reps 60-70% 1rm</td>
<td>15-25 reps 60-70%</td>
<td>10-12 reps 60-70%</td>
</tr>
<tr>
<td>Upper body</td>
<td>25-30 reps 50-75% 1rm</td>
<td>25-30 reps 50-75% 1rm</td>
<td>25-30 reps 50-70% 1rm</td>
<td>15-20 reps 50-70%</td>
</tr>
<tr>
<td>Accessory (Upper and Lower)</td>
<td>12-30 reps Moderate Intensity</td>
<td>12-30 reps Moderate Intensity</td>
<td>10-20 reps Moderate Intensity</td>
<td>0-20 reps Mod-Low Intensity</td>
</tr>
<tr>
<td>Pre-hab (injury prevent)</td>
<td>20-40 reps Light</td>
<td>20-40 reps Light</td>
<td>10-20 reps Light</td>
<td>10-20 reps Light</td>
</tr>
</tbody>
</table>
Periodization and Progression

“Majors”...the foundation

- Clean variation- Hang, Power, Pulls
- Squat variation- Back, Front, Split
- Posterior chain- Deadlift, Good AM, Glute-Ham raise, Stab. Ball curls, etc
  - Train the hamstrings from both ends on a weekly basis: straight leg (deadlifts) and bent knee (curls)
- Upper Body Push- Any chest press
- Upper Body Pull- Any row or chin
- Core- Isometric, Weighted, Endurance, Etc.
Periodization and Progression

“Minors”...the finishing details

- Accessory Lower Body
  - Unilateral, 1-leg, calf work, hip isolation work

- Accessory Upper Body—Goalkeepers only
  - Secondary Pushes/Pulls
  - Additional arm/shoulder work

- Balance and Pre-Habilitation Exercises
  - Bosu/Airex drills, joint stabilization exercises
Training Schedule

- How many days will you strength train?
  - 1 = Full body workout
    - 40-60 minutes
  - 2 = Split upper and lower, or Majors and Minors, or 2 smaller full-body workouts
    - 20-30 minutes each
  - 3 = Not necessary, but ok in pre-season
    - 1 Full, then other 2 split
    - 20-30 minutes each
Training Schedule

When you have less time than you need...

• Implement Workout Accelerators (time savers)
  - Use your Core/Abs as part of your warm up or put them between other exercises during “rest” periods.
  - Superset/Complex exercises
    - Upper with Lower, Push with Pull, Accessory with Pre-hab or Balance

• If that’s still not enough, stick with the “Majors”
  - Train the most important exercises and still get results
## Training Facilities and Equipment

### ALTERNATIVES WHEN A WEIGHTROOM IS NOT AVAILABLE

<table>
<thead>
<tr>
<th>EXERCISE</th>
<th>IDEAL EQUIPMENT</th>
<th>FIRST ALTERNATIVE</th>
<th>LAST RESORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLYMPIC</td>
<td>Barbells (BB) or Dumbbells (DB)</td>
<td>Medicine Ball (Tosses)</td>
<td>Plyometrics (weighted box jump)</td>
</tr>
<tr>
<td>SQUAT VARIATION</td>
<td>BB’s or DB’s</td>
<td>Medicine ball/ Stretch Bands</td>
<td>Body weight (Single leg squats)</td>
</tr>
<tr>
<td>UPPER BODY (push and pull)</td>
<td>BB’s or DB’s</td>
<td>Stretch Bands</td>
<td>Body weight/ partner resistance</td>
</tr>
<tr>
<td>Posterior Chain</td>
<td>BB’s,DB’s,Glute-Ham machine</td>
<td>Stability ball/ Stretch bands/ Med Balls</td>
<td>Body weight/ Partner resistance</td>
</tr>
<tr>
<td>Pre-Hab and Balance</td>
<td>Bosu ball, Airex pad, dyna disc, stability ball, bands</td>
<td>Body wt, Pillow/cushion, partner drill</td>
<td>NA</td>
</tr>
<tr>
<td>Core routines</td>
<td>Med/Stab balls nice but no equip neces.</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
Training “Age”

- Freshmen
  - Progress to DB and BB work only once techniques and mechanics are properly mastered.
    - “Body weight before adding weight”
    - May substitute a PVC pipe/Med ball for a bar on squat and olympic exercises to train technique/body mechanics.
    - Use body wt/band exercises for upper body until strong enough to handle DBs/BBs
Training Age

- Sophomores
  - If they have a full year of regular training completed, most are ready for BB/DB work on most exercises.
  - Continue to train technique and range of motion before getting aggressive with weight.
  - Avoid maximal lifts. Use repetition max (5-12) tests to estimate a 1RM.
Training Age

- Juniors/Seniors
  - Most should have a solid foundation of mechanics and technique by their 3rd year.
  - Can begin to train heavier weights as long as technique is not sacrificed.
  - Safety is still the priority.
Review

- Write a soccer-specific program that will fit YOUR team’s needs/abilities.

Based on:
- Athlete training experience
- Facility/Equipment availability
- A structured progression
- Your season’s schedule

- The best program is the one that gets done. Make one that works for you and your team.