

Appendix 1. Upper Crossed Syndrome Prompt and Prescribed Exercises

Your task is to develop an 8-week corrective exercise program for a 19-year-old individual. Here are the details to consider:

- Age: 19 years
- Weight: 70 kg
- Height: 175 cm
- Hyperkyphosis angle: 56.14 degrees
- Craniovertebral angle: 58.7 degrees
- Shoulder angle: 61.5 degrees

Prompt: Write an 8-week corrective exercise program for a person who is 19 years old, weight 70kgs and height 175 with hyperkyphosis angle 56.14, craniovertebral angle 58.7, and shoulder angle 61.5 based on FITT principles (Frequency, Intensity, Time, and Type) for optimal results. Please ensure that the program includes specific exercises targeting the identified postural issues and adheres to the FITT principles. Additionally, provide figures or diagrams for a better understanding of each exercise, emphasizing proper form and technique.

Week 1-2: Foundation Phase**

1. Chin Tucks (Cervical Retraction) **

- **How to Perform: ** Sit or stand tall with neutral posture. Tuck your chin in, aiming to elongate the back of the neck. Hold for 5 seconds, then relax.
- **Reps: ** 2 sets of 10 reps
- Progression: Increase hold time to 10 seconds.

2. Thoracic Extension (Overhead Reach)

- **How to Perform:** Sit on the floor or in a chair. Place your hands behind your head, elbows wide. Gently arch your upper back, lifting your chest toward the ceiling. Hold for 5 seconds, then return to neutral.
- **Reps:** 2 sets of 10 reps

- **Progression:** Perform slowly to focus on controlled motion.

****3. Scapular Retraction (Shoulder Blade Squeeze)****

- **How to Perform:** Sit or stand tall. Draw your shoulder blades back and down as if pinching them together. Hold for 5 seconds.
- **Reps:** 2 sets of 10 reps
- **Progression:** Increase hold time to 10 seconds.

****4. Thoracic Spine Foam Rolling****

- **How to Perform:** Place a foam roller on the floor and lie on your back with the roller placed just below your shoulder blades. Cross your arms over your chest, lift your hips, and gently roll back and forth over the upper back for 30 seconds.
- **Reps:** 2-3 sets of 30 seconds
- **Progression:** Focus on more precise areas of restriction.

****5. Wall Angels****

- **How to Perform:** Stand against a wall with your lower back, upper back, and head touching the wall. Place your arms at 90-degree angles, elbows bent. Slide your arms up and down the wall while keeping contact with the wall.
- **Reps:** 2 sets of 10 reps
- **Progression:** Increase range of motion as shoulder flexibility improves.

****Week 3-4: Strength and Mobility Phase****

****1. Face Pulls (Resistance Band or Cable Machine)****

- ****How to Perform:**** Attach a resistance band or cable at head height. Pull the band/cable towards your face, keeping your elbows high and shoulder blades squeezing together.
- ****Reps:**** 3 sets of 12 reps
- ****Progression:**** Increase resistance gradually.

****2. Seated Rows (Resistance Band or Cable Machine)****

- ****How to Perform:**** Sit tall with feet firmly planted. Pull the handles or band towards your torso, squeezing your shoulder blades together.
- ****Reps:**** 3 sets of 12 reps
- ****Progression:**** Increase resistance as strength improves.

****3. Pec Stretch (Doorway or Corner Stretch)****

- ****How to Perform:**** Place your forearms on either side of a doorway or corner, elbows at shoulder height. Step forward gently, feeling a stretch across the chest.
- ****Duration:**** Hold for 30-45 seconds per side
- ****Reps:**** 2 sets per side
- ****Progression:**** Increase time held.

****4. Cat-Cow Stretch (Dynamic Thoracic Mobility)****

- ****How to Perform:**** Start in a tabletop position on your hands and knees. Inhale as you arch your back (cow pose) and exhale as you round your back (cat pose). Focus on moving the upper back.

- **Reps:** 3 sets of 10 reps
- **Progression:** Increase range of motion as thoracic mobility improves.

5. Prone Y, T, W Raises

- **How to Perform:** Lie face down on a mat. With thumbs pointing upwards, lift your arms into a Y position, then T, and finally W. Squeeze your shoulder blades as you lift.
- **Reps:** 3 sets of 10 reps each position
- **Progression:** Increase hold time at the top.

Week 5-6: Postural Strengthening Phase

1. Wall Angels (Advanced Version)

- **How to Perform:** Perform wall angels with a resistance band or light weights. Focus on slow, controlled movement, ensuring that the lower back, upper back, and head remain in contact with the wall.
- **Reps:** 3 sets of 12 reps
- **Progression:** Increase resistance or time spent holding the position.

2. Superman Holds

- **How to Perform:** Lie face down on the floor, arms extended overhead. Lift your chest, arms, and legs off the floor, engaging your glutes and back. Hold for 5-10 seconds.
- **Reps:** 3 sets of 8-10 reps
- **Progression:** Increase hold time as strength improves.

****3. Standing Scapular Retraction with Band****

- ****How to Perform:**** Stand tall with a resistance band in both hands. Pull the band apart while squeezing your shoulder blades together.
- ****Reps:**** 3 sets of 15 reps
- ****Progression:**** Increase resistance gradually.

****4. Chin Tucks with Isometric Hold****

- ****How to Perform:**** Perform a chin tuck as described earlier, and hold for 10-15 seconds. Perform while sitting, standing, and walking to challenge endurance.
- ****Reps:**** 3 sets of 10-12 reps with 10-15 second holds
- ****Progression:**** Increase hold time or perform with added resistance.

****5. Planks (Core Strength and Postural Control)****

- ****How to Perform:**** Perform a forearm plank with a straight body line, engaging your core and squeezing your glutes.
- ****Duration:**** Hold for 30-45 seconds
- ****Reps:**** 3 sets
- ****Progression:**** Increase hold time as endurance improves.

****Week 7-8: Strengthening and Postural Reinforcement Phase****

****1. Deadlifts (Modified, with Proper Posture)****

- **How to Perform:** Start with a light barbell or kettlebell. Keep your back straight, hinge at your hips, and slowly lower the weight, keeping the spine neutral.

- **Reps:** 3 sets of 8-10 reps

- **Progression:** Increase weight gradually.

2. Reverse Flies with Dumbbells

- **How to Perform:** Bend forward at the hips with a slight bend in the knees. With dumbbells in both hands, lift your arms out to the sides, squeezing your shoulder

blades together.

- **Reps:** 3 sets of 12 reps

- **Progression:** Increase weight or reps.

3. Pull-Aparts with Resistance Band

- **How to Perform:** Hold a resistance band at shoulder width. Pull the band apart while keeping your arms straight, squeezing your shoulder blades.

- **Reps:** 3 sets of 15-20 reps

- **Progression:** Increase resistance or reps.

4. Thoracic Rotation Stretch

- **How to Perform:** Sit on the floor with your legs crossed. Place one hand behind your head, and rotate your upper body to the opposite side while keeping your hips grounded.

- **Duration:** Hold for 30 seconds per side

- **Reps:** 2-3 sets per side

5. Isometric Neck Strengthening

- **How to Perform:** Press your palm against your forehead while resisting the motion of your head trying to move forward. Hold for 5-10 seconds.

- **Reps:** 3 sets of 10 reps

- **Progression:** Increase resistance or hold time.

Dynamic Knee Valgus Prompt and Prescribed Exercises

Your task is to develop an 8-week corrective exercise program for a 19-year-old individual. Here are the details to consider:

- Age: 19 years
- Weight: 72 kg
- Height: 176 cm

Prompt: Write an 8-week corrective exercise program based on FITT principles (Frequency, Intensity, Time, and Type) for optimal results for a person who is 19 years old, weight 70kgs and height 175 with dynamic knee valgus angle 21.40. Please ensure that the program includes specific exercises targeting the identified postural issues and adheres to the FITT principles. Additionally, provide figures or diagrams for a better understanding of each exercise, emphasizing proper form and technique.

8-Week Corrective Exercise Program for Dynamic Knee Valgus (Angle: 21.4°)

Week 1-2: Foundation Phase (Mobility & Awareness)

1. **Hip Flexor Stretch

- **How to Perform:** Step into a lunge position, with one knee on the floor and the other foot forward. Push the hips forward to feel a stretch in the hip flexors of the back leg.
- **Hold:** 20-30 seconds per side
- **Reps:** 2-3 sets per side
- **Progression:** Increase hold time.

2. **Glute Bridge

- **How to Perform:** Lie on your back with knees bent, feet flat on the floor, and arms by your sides. Push your feet into the ground and lift your hips off the floor, engaging the glutes and core. Hold for 2-3 seconds at the top, then lower back down.
- **Reps:** 2 sets of 10-12 reps
- **Progression:** Increase hold time at the top.

3. **Clamshells (With Resistance Band)

- **How to Perform:** Lie on your side with your knees bent at 90 degrees, feet together. Place a resistance band around your thighs just above your knees. Keeping your feet together, lift your top knee as high as possible without rotating your pelvis. Return slowly to the start position.

- **Reps:** 2 sets of 10-12 reps per side
- **Progression:** Increase resistance with a thicker band.

4. Wall Sits with Knee Tracking

- **How to Perform:** Stand with your back against a wall, feet shoulder-width apart. Slide down into a squat position while keeping your knees aligned with your toes. Hold for 20-30 seconds. Focus on preventing your knees from collapsing inward.
- **Reps:** 2-3 sets
- **Progression:** Increase hold time.

5. Foam Rolling for IT Band and Quads

- **How to Perform:** Lie on your side with the foam roller under your outer thigh, rolling from your hip down to your knee. Switch to rolling the quads by positioning the foam roller under your thighs.
- **Duration:** 1-2 minutes per muscle group
- **Reps:** 2-3 sets
- **Progression:** Increase time on tight areas.

Week 3-4: Strengthening and Control Phase

1. Squat with Resistance Band (Focused on knee alignment)

- **How to Perform:** Place a resistance band just above your knees. Stand with feet shoulder-width apart, squat down while keeping your knees in line with your

toes (do not let them cave inward). Push through your heels and return to standing.

- **Reps:** 3 sets of 12-15 reps
- **Progression:** Increase resistance or depth of squat.

****2. Step-Ups with Knee Drive** (Controlled knee alignment)**

- **How to Perform:** Stand in front of a step or bench. Step up with one foot, driving the opposite knee up as you push through the heel. Focus on keeping your knee aligned over your toes.
- **Reps:** 3 sets of 10 reps per side
- **Progression:** Increase step height or add light weights.

****3. Lateral Band Walks****

- **How to Perform:** Place a resistance band just above your knees. Squat slightly and step sideways, maintaining tension in the band. Take 10-12 steps in one direction, then return.
- **Reps:** 3 sets of 10-12 steps per direction
- **Progression:** Increase band resistance or add more steps.

****4. Lunges with Focus on Knee Alignment****

- **How to Perform:** Step forward into a lunge. Focus on keeping your knee aligned with your toes, avoiding inward collapse. Push back to the starting position and repeat.
- **Reps:** 3 sets of 10 reps per side

- **Progression:** Add dumbbells or increase lunge depth.

5. Standing Hip Abduction (With Resistance Band)

- **How to Perform:** Place a resistance band around your ankles. Stand tall and shift your weight to one leg. Lift the other leg out to the side, keeping your knee straight. Return to the starting position.
- **Reps:** 3 sets of 12-15 reps per side
- **Progression:** Increase resistance or add ankle weights.

Week 5-6: Postural and Dynamic Stability Phase

1. Single-Leg Squat (Assisted if needed)

- **How to Perform:** Stand on one leg, keeping your knee in line with your toes. Perform a squat, lowering your hips back while maintaining balance. Use a support like a chair or wall for assistance if needed.
- **Reps:** 3 sets of 8-10 reps per side
- **Progression:** Increase squat depth and decrease reliance on assistance.

2. Bulgarian Split Squat

- **How to Perform:** Place one foot behind you on a bench or elevated surface. Lower your hips into a lunge position, ensuring your front knee tracks in line with your toes. Push back up to standing.
- **Reps:** 3 sets of 8-10 reps per side

- **Progression:** Add dumbbells for increased resistance.

3. Jump Squats (Low Impact Option)

- **How to Perform:** Start in a squat position, then jump up while extending your legs. Land softly back into the squat position. Focus on control and knee alignment as you land.
- **Reps:** 3 sets of 8-10 reps
- **Progression:** Add a slight pause at the bottom of the squat or use a higher jump.

4. Resistance Band Knee Presses (For knee alignment and stability)

- **How to Perform:** Place a resistance band around your thighs just above your knees. Push your knees outward against the band's resistance while maintaining proper squat or standing posture.
- **Reps:** 3 sets of 12-15 reps
- **Progression:** Increase resistance or perform while holding a squat position.

5. Foam Rolling and Stretching (Targeting tight muscles)

- **How to Perform:** Use a foam roller to target areas of tightness, such as the IT band, quads, and hip flexors.

Hold each muscle group for 1-2 minutes.

- **Reps:** 2-3 sets per muscle group
- **Progression:** Increase rolling time as flexibility improves.

****Week 7-8: Functional Strength and Knee Control Phase****

****1. **Box Jumps (or Step-Ups for lower impact)****

- ****How to Perform:**** Stand in front of a sturdy box or platform. Jump up onto the box with both feet, landing softly. Step down and repeat.
- ****Reps:**** 3 sets of 8-10 reps
- ****Progression:**** Increase box height or use weighted vests for resistance.

****2. **Squat to Press****

- ****How to Perform:**** Perform a deep squat while holding dumbbells or a barbell. As you rise, press the weights overhead. Keep your knees aligned and avoid letting them cave inward.
- ****Reps:**** 3 sets of 10 reps
- ****Progression:**** Increase weight or squat depth.

****3. **Step-downs** (Controlled Knee Alignment)**

- ****How to Perform:**** Stand on an elevated surface (like a step or bench). Slowly lower one leg down toward the ground while keeping your knee aligned with your toes. Return to starting position.
- ****Reps:**** 3 sets of 8-10 reps per side
- ****Progression:**** Increase step height.

****4. **Lateral Lunge to Curtsy Lunge** (Functional Lower Body Movement)**

- **How to Perform:** Step out to the side into a lateral lunge, then push back to standing and step into a curtsy lunge on the other side.
- **Reps:** 3 sets of 10 reps per side
- **Progression:** Add weights or increase lunge depth.

5. Standing Leg Circles (with resistance band)

- **How to Perform:** Place a resistance band around your ankle. Stand tall and rotate your leg outward in small controlled circles. Focus on keeping your knee stable and aligned.
- **Reps:** 3 sets of 12-15 reps per side
- **Progression:** Increase resistance or add ankle weights.
