



Program Development for 59-Year-Old Female with Knee Osteoarthritis Targeting Balance, Increased Lean Body Mass and Strength

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EXERCISE SCIENCE
SACRED HEART UNIVERSITY

INTRODUCTION

Our client came to us with the goal of increasing her fitness activity level. Her long-term goal was to reduce body fat while increasing her lean body mass. She is a healthy 59-year-old who isn't very active but takes daily walks on her lunch and does free weight exercises for about 20 minutes every morning. She is interested in incorporating greater resistance exercises while still partaking in her walks. With our clients goals we have created an exercise program designed to her specific needs.

INTERVIEW SUMMARY

- *Goals: Reduce fat mass in specific areas such as glutes, arm, stomach and legs. Spot-reduction is often hard to achieve, so working more towards reduction of overall fat mass.*
- *Would like a consistent routine*
- *Has participated in approx. 20 minutes of physical activity 5 days a week, sometimes less depending on schedule, for the past few months. Medical clearance was not necessary for patient to begin regular exercise program.*
- *Current Activities: consists of bicep curls, lateral raises with light dumbbells and uses Wonder Core machine*
- *Prefers working out at home*
- *Restricted to a short workout due to long commute to and from work (15-20 minutes)*
- *No current medications*
- *Reports Osteoarthritis in right knee and left hand; reports prior fall*

NEEDS ANALYSIS

The focus of exercise plan is based on our client's needs which include strength and fat mass loss, a previous knee injury causes our client to lack confidence during deep squats and single leg stance. Some of her day-to-day challenges were stairs and longer walks. Our client also faces a challenge when it comes to finding time for an exercise plan so something that can be easily worked in during the workday or before work was the goal.

ASSESSMENT PROTOCOL & RESULTS

Category	Assessment	Results
Anthropometrics	Pre-exercise BP ✔	120/74, within normal blood pressure range
	Body composition ✘	Fat mass percentage calculated was 43.4%, "overweight category" with normative data
	Wall poke ⚠	Lack of thoracic mobility
Kinesiological	Single leg stance ✘	Positive in both left and right leg, deviated from hands on hip, foot touched ground, held for less than 10 seconds
	Thomas test/ modified Thomas test ✘	Tightness in the rectus femoris and iliopsoas of right leg
Physiological	10-meter walk test ✔	Calculated gait speed of 1.6 m/s which is considered "above average" with normative data
	Ebbeling treadmill test ⚠	Estimated VO2max was 23.8 ml/kg/min classified as "fair" with normative data
Performance	Bicep curl test ✔	23 repetitions (L), 23 repetitions (R), Excellent Category
	Knee Flexion/Extension Handheld dynamometry ✘	Inability to produce knee extension force quickly, and unable to complete knee flexion due to cramping
	Grip strength handheld dynamometry ⚠	The grip strength average of both hands was 37.5 kg, "poor category" with normative data.
	Manual muscle testing internal/external rotation ✔	Scored a 5 three consecutive times for both internal and external rotation indicating ability to hold position at maximum resistance

PROGRAM SUMMARY

This program is designed for our client who wishes to increase her physical activity levels, while also focusing on strength and decreasing fat mass. It included 3 days week, 1 day being upper body, 1 day being lower body focused, and 1 day being a full body circuit. This split includes primarily resistance training with a cardio aspect on the circuit day. Various exercises were included in the program that progressed in volume and intensity. Most exercises started at 2 sets of 10 reps and slowly progressed to 3 sets of 15 reps. On the circuit day, exercises were performed for 30 seconds at the beginning and eventually progressed to 60 seconds. The client would repeat the circuit 1-2 times initially, and progress to 3 times. This slow increase in difficulty allows our client to initially focus on movement competency and then move towards focusing more on strength. Familiar exercises, like bicep curls and the Wonder Core machine, were included for comfort, as well as new movements to improve client's movement competency and provide variety.

OVERALL IMPRESSIONS/TAKE HOME MESSAGE

Our client showed weaknesses in her lower body assessments as well as some strength discrepancies between her right and left leg. We have concluded from the assessments performed that her main areas of focus included strength, balance and working to increase her lean body mass. The program we created was made to address all these areas therefore we added exercises to help strengthen her lower body while also incorporating exercises that target her upper body to address her goal of increasing her lean body mass. We also told our client to continue participating in her walks at lunch every day.

REFERENCES

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Figure 1. Client performing Modified Thomas Test



Figure 2. Client performing Thomas Test



Scan to view full exercise program.