STRENGTH TRAINING FOR THE OLDER CLIENT—A BLUEPRINT FOR PROGRAM DESIGN

ROBERT LINKUL, MS, CSCS,*D, NSCA-CPT,*D, RCPT,*D FNSCA

Strength training for the older client (defined as persons 50 and over) can be an intimidating and challenging process for the inexperienced personal trainer for three common reasons (3):

1. The older client demographic is often untrained or lacking training experience

2. The older client demographic is fearful of injury or looking foolish in the weight room

3. The older client demographic possibly has a physical limitation(s) to consider when creating their program design

Keeping these concerns in mind, the personal trainer obtains information from their client during their initial interview and consultation, and moves to the task of creating a program design for their first workout. The intention of this article is to provide a blueprint and "mini-macrocycle" that will assist the personal trainer in creating a program design for older adults by offering organized templates, direction in selecting exercise components, and the creation of volume controls specific to their client's needs.

The six components of the blueprint include balance and implement tracking, hinges, rows, presses, split stance, and weighted carries. These six components have been selected as they address each major muscle group and include movement patterns and/or skills that are often utilized on a daily basis (3). Each component is broken down from its most simple (auxiliary) movements, progressed to mid-range, and concludes with its most complex (compound) movements. It is the intention of this blueprint to assist the personal trainer in building their client's ability to perform all of these movements (pending physical limitations) on any given day in any given workout.

Table 1 provides a "mini-macrocycle" detailing volume controls (e.g., repetitions, sets, load, tempo, recovery, etc.) and further programing details specific to working with older clients. Typical macrocycles outline a year or more of training details ending in a culminating date or event (1). However, in the author's experience, the older client is often lacking a specific date or event in which they wish to train. For the purpose of this article, a 12-week mini-macrocycle has been created to offer direction on volume control, training themes, and areas of focus for the personal trainer working with an older client.

BLUEPRINT STRUCTURE

Personal trainers often have different training philosophies with varied volume controls, themes, and areas of focus (6). Personal trainer can transfer their own training philosophy into a program design template (or blueprint) to provide consistency and direction to their programing. Below are further details on each of the blueprint training components, as well as the progression of exercises from the simplest to the most complex options.

BALANCE AND IMPLEMENT TRACKING

Balance training for the older client can be a challenge as the aging process decreases their ability to balance due to muscular atrophy, erosion, and disuse (3). Years of no training or undertraining can lead to limited balance ability during multiple different tasks, including walking, running, jumping, getting up and down off the floor, and a variety of other movements. The potential loss of muscle mass and the lack of practicing the skill of balancing can decrease the client's ability to coordinate movement patterns to keep the body balanced. This may ultimately lead to falls and is a primary reason for including this component in the program design blueprint.

Physical limitations (e.g., lower back pain, etc.) can assist in producing decreased balance as the physical limitation may result in the older client altering their gait (i.e., regular walking stride). With the client's altered gait and a decrease in muscle mass, the older client may find it difficult to coordinate and move their body efficiently when trying to perform basic exercises. Basic balance exercises can range from narrow or inline balancing on both feet to more challenging efforts, like a single-leg balance while performing a biceps curl and press overhead. The primary concern should be on starting with the more basic movements and

TABLE 1. 12-WEEK PROGRAM DESIGN VOLUME CONTROL MACROCYCLE

	THEME	FOCUS	REPS	SETS	TOTAL VOLUME	TEMPO	RECOVERY
Week 1	Strength gain	Unilateral	8	4	32	2:1	As needed
Week 2	Strength gain	Bilateral	10	4	40	2:2	As needed
Week 3	Strength gain	Unilateral	12	4	48	2:1	1:30
Week 4	Muscular endurance/deload	Floor-based activities	20				
Week 5	Strength gain	Unilateral	10	4	40	2:1	As needed
Week 6	Strength gain	Bilateral	12	4	48	2:2	As needed
Week 7	Muscular endurance	Unilateral	14	4	56	1:1	1:00
Week 8	Muscular endurance/deload	Floor-based activities	25				
Week 9	Strength gain	Unilateral	8	4	32	2:2	As needed
Week 10	Muscular endurance	Unilateral	10	4	40	1:1	1:00
Week 11	Cardiovascular endurance	Bilateral	12	4	48	1:1	Ready go
Week 12	Muscular endurance/deload	Floor-based activities	30				

Reprinted with permission from Be STRONGER Fitness

progressing them to the more challenging efforts per the client's ability to do so successfully. Further balance progressions can be seen in Table 2.

An aid to improving balance is the skill of implement tracking (i.e., the client's ability to track, catch, and throw an implement). The older client's ability to accelerate, release, track, and catch an implement increases their spatial awareness. Spatial awareness is "the organized knowledge of objects in relation to oneself in a given space" a process in which the client must interpret information quickly as to where they are in space or objects moving around them to keep them in the position they want (e.g., standing, running, etc.) (7). Implement tracking gives the older client the opportunity to practice and improve this skill, along with improved coordination and agility, collectively assisting them in improving their balance and spatial standing.

Implement tracking can start with exercise as simple as dribbling a lacrosse ball or bouncing a balloon into the air, and progressing to more challenging exercises, like a medicine ball overhead throw, medicine ball return device (angled trampoline), or lateral slides with a partner while performing medicine ball chest passes. Focus should be placed on the client's current ability to perform basic movements and progresses to more challenging movements with the intention of being able to perform the majority of them on any given day. More detail on implement tracking exercise progression can be found in Table 2.

HINGES

Hinging is a movement older clients commonly have a difficult time learning to perform properly due to overly tight hip flexors and hamstrings. Undertraining and daily habits of excessive sitting or inactivity can often lead to immobile hips that move poorly and/or rely on the lower back for assistance (2). It is common for older clients to experience a "tucked-butt" position (i.e., posterior pelvic tilt), making the unlocking of the pelvis (i.e., anterior pelvic tilt) much harder to achieve (2). Proper hinging mechanics requires some mobility of the hip as that should be emphasized prior to performing or adding load to a hinge. Effectively performing movements commonly found in daily life (e.g., sit to stands, walking stairs, bending to pick up, walking, transferring weight, etc.) originate from solid pelvic stability and pliable hip mobility. As the older client improves their hip mobility and stability, they will find greater ease when performing their daily life activities.

Basic hinge mechanics and strength development can start with floor-based glute/hip bridging with bodyweight and progress to external loads (e.g., barbells or sandbags) and/or progressive loads (e.g., chains or resistance bands). Paired with a mobility and flexibility routine specifically geared toward hip mobility, the older adult client may find success progressing up to deadlifts, stiff-leg deadlifts, good-mornings, hip thrusts, and other more difficult hinges outlined and progressed in Table 3.

PRESSES AND RAISES

The average personal trainer typically sees their client twice a week for 45 – 60 min per session. With 168 hours in the week and only about 90 min of total access to the client during that time frame, the personal trainer needs to be as efficient and productive as possible with their programing. Keeping this in mind, the personal trainer should be very selective in their exercise selection as kyphosis, the rounding of the upper back, can become an issue for the older client (4). Depending on the client's physical limitations and ability, emphasis on vertical press strength and increased range of motion may be more of a priority compared to horizontal presses.

With the aging process comes some assumptions that older clients will develop shoulder issues if they train with heavier loads, especially with heavy loads overhead. Regular practice of pressing and raising the arms overhead with the introduction and progression of load may increase the likelihood the older client will develop a stable, mobile, and strong shoulder joint as they age. Pending physical limitations, the personal trainer should not be afraid to place a priority on shoulder health and the development of strength at this joint (5).

Depending on the client and their ability level, the personal trainer can begin overhead pressing movements with light weights in a neutral grip with strict presses (simple) and progress to barbell jerks (complex) over time. Additional shoulder strength can be

addressed with a variety of shoulder raises varying from hand position (e.g., neutral, supinated, and pronated) and angles (e.g., 0, 45, or 90 degrees). Horizontal pushes can be progressed from elevated push-ups (simple) to dumbbell alternating bench press (complex) as the client's strength and ability levels improve. More information for exercise progression for presses and raises can be found in Table 4.

ROWS

This rowing section aims to develop the musculature of the posterior chain to assist with the client's efforts to hold proper posture. Proper posture includes holding correct alignments during all three phases of a lift (preparation, acceleration, and follow through), thereby improving mechanics for regular life movements, such as standing, sitting, pulling, pushing, pressing, and lifting.

Keeping in mind that the average personal trainer typically sees their client twice a week for 45 min, personal trainers need to be as efficient and productive as possible with their programing. This is why the rowing component is heavily emphasized in this blueprint. In the blueprint, it is suggested that rows are given a work ratio of two to one, compared to all other components, as there are two varied angles of pull for the client to perform. Horizontal pulls and vertical pulls make up the rowing component. Progressions for this component can be seen in Table 5. Posterior chain muscular development can be an easily neglected movement for older clients as vertical pulls, (i.e., first angle of pull) like pull-ups, chin-ups, and upright rows, can be very challenging to perform due to the strength required to perform the lift or due to physical limitations of the shoulders or elbows. Horizontal pulls (i.e., second angle of pull), such as seated rows, bent-over rows, landmine rows, and suspension device rows (i.e., bodyweight row), are typically more common and comfortable for the older client to perform than vertical pulls. Rows should not be neglected in the personal trainer's program design based on some of the

TABLE 2. BALANCE AND IMPLEMENT TRACKING PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Balance	Inline hold	Single-leg hold	Single-leg hold with load (ropes, medicine ball)
	Inline hold (on balance pad)	Single-leg hold (on balance pad)	Single-leg hold with load (dumbbells, kettlebells, bands)
	Inline hold (eyes closed)	Single-leg hold (eyes closed)	Single-leg hold with load (balance pad, eyes closed)
Implement Tracking	***To self: (tennis or lacrosse ball)***	***Medicine ball return: (medicine ball or lacrosse ball)***	***Partner: (medicine ball or lacrosse ball)***
	Unilateral bounce (floor or wall)	Chest pass (even, kneeling, or split)	Chest pass (even, kneeling, or split)
	Contralateral bounce (floor or wall)	Shot put (even, kneeling, or split)	Shot put (even, kneeling, or split)
	Standing, kneeling, or balancing	Overhead (even, kneeling, or split)	Overhead (even, kneeling, or split)

Reprinted with permission from Be STRONGER Fitness

TABLE 3. HINGING PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Hinges	Bodyweight hinge	Loaded stiff-leg deadlift (replacement)	Loaded single-leg Romanian deadlift
	Band loaded stiff-leg deadlift	Single-leg Romanian deadlift	Loaded (seated) hinge-squat
	Bodyweight hinge-squat (regular or sumo)	Loaded hinge-squat (front squat, Zercher, goblet, hex bar, overhead)	Landmine hinge
	Bodyweight unload (seated) hinge-squat	Feet elevated hip bridge (band, sandbag, barbell)	Loaded hip bridge (dumbbell, sandbag, barbell, band)
	Hip bridge (both, single leg, frog)	Ball slam (standing or kneeling)	Shoulder elevated hip bridge (band, sandbag, barbell)
	Hamstring curl (physio ball, suspension)	Floor-based reverse hyper (physio ball)	Reverse hyper

Reprinted with permission from Be STRONGER Fitness

challenges that the older client may experience. Assistance on improving and progressing these movements can be accomplished with the use of pulleys, selectorized machines, or progressive resistance bands.

SPLIT STANCE

Split stance training can include lunges, step-ups, walking, running, or sprinting variations depending on the older client's ability level. The goal of split stance training is to develop the client's strength and stability in each leg independently. The personal trainer may recognize strength and stability imbalances in their client's ability to perform split stance exercises typically due to compensation. Compensation, or dominance of one leg, can occur from continued overuse of one dominant side during movements found in daily life (e.g., stepping, hinging, squatting, kneeling, jumping, etc.) as well as exercises performed during workouts.

To maximize the older client's ability to develop strength evenly in split stance positions, the personal trainer can feature movements and progressions found in Table 6. These progressions range from bodyweight split squats to heavy load prowler sprints with the intention of selecting and progressing appropriate exercises to safely challenge the older client and appropriately build the strength and stability needed to achieve their goals. Building an efficient and progressive program design that will prevent or even-out any imbalances or compensations for the older client will benefit them greatly as they age.

LOADED CARRIES (AND CORE TRAINING)

This component is broken up into two categories that focus on improving a client's coordination: core strength, and the ability to move and manipulate a load or their own bodyweight efficiently and from different positions. These different positions can refer to carrying and transitioning loads (e.g., groceries, tool boxes, bags, etc.), getting up off the floor (e.g., gardening, cleaning, playing, etc.), and moving their body along the floor or in other locations (e.g., in a bed, in a chair, etc.) as these are standard and required actions performed on a daily basis.

Loaded carries refers to transitioning a load properly from one location to another. To do so safely and correctly, the load is often placed in different locations to develop strength and coordination in different muscle groups. Exercises can include farmer walks, suitcase carries, and waiter walks (2). Progressions and variations for weighted carries can be found in Table 7.

Core work refers to floor-based activities that assist the "loaded carry" component by specifically training the trunk. Core exercises progress from simple to complex and range from planks and deadbugs to bear crawls and bodyweight get-ups to loaded get-ups and anti-rotation exercises. These exercise progressions are featured in Table 7.

TABLE 4. PRESSES AND RAISES PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Presses	Band chest press	Barbell bench press (incline, decline)	Dumbbell bench press (incline, decline)
	Band chest fly	Barbell floor press	Dumbbell floor press (incline, decline)
	Sandbag floor press	Medicine ball chest pass	Dumbbell chest fly (incline, decline)
	Push-up (incline, decline)	Pop push-up	Neider press (i.e., push press at 45 degree angle)
	Bench dip	Feet elevated bench dip	Clap push-up
	Triceps band push-down	Overhead triceps extension	Ring dip
	Band kickbacks	Dumbbell kickbacks	French press
Raises	Band strict press	Push press	Jerk
	Strict press	Upright row	Landmine press (single-arm, double-arm) (standing, split, or kneeling)
	Lateral raise	Bent "Y" fly	
	Front raise	Arnold press	
	Bent-over fly	Chek press (i.e., neutral grip overhead press, 90 degree external rotation to pronated negative press down)	

Reprinted with permission from Be STRONGER Fitness

TRAINING TIME FRAMES

When training a client with a performance-based goal, a macrocycle (a year or more of outlined programing) is typically created to detail all the information needed to achieve that goal. Training the older client for quality of life-based goals (non-performance based goals) requires a macrocycle as well; however, the time frame may be shorter. To accomplish the older client's training goals, the use of a "mini-macrocycle" (such as the one in Table 1) can be used. The length of the mini-macrocycle depends on the client's goal(s) and should be based on a realistic amount of time to be achieved (2). The mini-macrocycle features the following information:

- A time frame for the culminating event to be completed or achieved
- Volume controls for each training day including repetitions, sets, loads, lifting tempos, and rest/recovery times
- Programing components like bilateral, unilateral, or contralateral movements and training focuses from week to week, including muscular strength, muscular hypertrophy, muscular endurance, and/or endurance based programing controls

In some cases with older clients, a time frame for achievement may not exist at all due to the type of goal set. For example, a client's goal might be to reduce stress and tightness in their shoulders and increase their overall shoulder mobility. This goal is specific to the client and addresses their primary concerns; however, it does not provide a set culminating date in which it must be achieved. Without a culminating date, it can be easy for the personal trainer to simply "keep training" until the client feels improvement has been achieved. However, it is the personal trainer's professional responsibility to create a program design that will attempt to achieve their client's goal(s) in a timely manner. To accomplish this, a mini-macrocycle needs to be designed that showcases a start and end date in which the client will be assessed and re-assessed to see if improvement has been achieved.

At the conclusion of the mini-macrocycle, the personal trainer can review their pre-and post-assessment results and collect data on the efficiency of their programing. Based on their findings, the personal trainer needs to "self-reflect" on their programing and make the appropriate changes to improve the quality of their services. These changes need to strategically address the demands of their client's goals and can be adjusted as the personal trainer deems appropriate.

CONCLUSION

The older client blueprint program design components and mini-macrocycle featured in this article are provided as examples for personal trainers to learn from. It is the author's hope that personal trainers will either utilize this blueprint program design and mini-macrocyle or use it to create their own program design that will specifically meet the needs and demands of their older clientele. With a specialized blueprint program design, a mini-macrocyle, and a training philosophy all specifically designed with the older clients' goals and needs in mind, the likelihood of older clients achieving their goals is greatly increased.

REFERENCES

1. Baechle, T, and Westcott, W. *Fitness Professionals Guide to Strength Training Older Adults.* (2nd ed.) Champaign, IL: Human Kinetics; XI-XIII, 11, 2010.

2. Baechle, T, Earle, R, and Wathern, D. Resistance Training. In: Baechle, T, and Earle, R (Eds.), *NSCA's Essentials of Strength Training and Conditioning.* (3rd ed.) Champaign, IL: Human Kinetics; 392-393, 509, 2008.

3. Cheatham, SW, Hanney, WJ, Kolber, MJ, and Salamh, PA. Osteoporosis: Exercise programming insight for the sports medicine professional. *Strength and Conditioning Journal* 39(3): 2-13, 2017.

4. Cook, G. *Movement: Functional Movement Screen*. Lotus Pub; 258-259, 2010.

TABLE 5. ROW PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Rows	Band pulldown	Band straight-arm pulldown	Barbell T-bar or bent row
	Reclined row (barbell, ring)	Dumbbell/kettlebell pullover	Dumbbell renegade/long snap row (i.e., wide feet with hand on a bench)
	High/low band row	Inverted row (barbell, ring)	T-bar row
	Band curl	Dumbbell quadruped row (on knees)	Reverse hyper row
	Biceps curl	Seated band row	Dumbbell flat bench biceps curl

Reprinted with permission from Be STRONGER Fitness

5. Cosgrove, A, and Schuler, L. *The New Rules for Lifting: Six Basic Moves for Maximum Muscle*. Avery; 13-28, 2008.

6. Eckersley, S. Spatial awareness: What is it? 2012. Retrieved 2017 from www.occupationaltheraphyforchildren.over-blog.com. John, D. *A Philosophy of Strength Training*. On Target Publishing; 2009.

7. Tumminello, N. The corrective exercise trap. *Personal Training Quarterly* 4(1): 6-15, 2017.

ABOUT THE AUTHOR

Robert Linkul was the National Strength and Conditioning Association (NSCA) Personal Trainer of the Year in 2012. He is currently a volunteer with the NSCA as the Southwest Regional Coordinator and Committee Chairman for the Personal Trainers Special Interest Group (SIG). Linkul is the Career Development columnist for the NSCA's Personal Training Quarterly (PTQ) publication and speaks internationally on career development techniques for personal trainers. Linkul mentors personal training students and rookie trainers entering the industry on business strategies, client retention, and professional longevity. Linkul has been in the industry since 1999, and owns and operates his own personal training studio in Sacramento, CA.

Conflicts of Interest and Source of Funding: *The authors report no conflicts of interest and no source of funding.*

TABLE 6. SPLIT STANCE PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Split Stance	Split squat (lunge in place)	Loaded split squat	Loaded rear leg elevated split squat
	Lunge, reverse, or lateral lunges	Loaded lunge, reverse lunge, or lateral lunge	Dynamic loaded split squat (alternating)
	Low or high step-up	Dynamic lunge (alternating)	Loaded step-up and over (step down)
	Lateral step-up (and over)	Rear leg elevated split squat	Sled/prowler push/pull (run)
	Step-up (and down)	Loaded low or high step-up	Loaded pulse lunges (double, triple, etc.)
		Sled/prowler push/pull (walk)	

Reprinted with permission from Be STRONGER Fitness

TABLE 7. LOADED CARRY AND CORE PROGRESSIONS

	SIMPLE (AUXILIARY)	INTERMEDIATE	COMPLEX (COMPOUND)
Loaded Carry	Farmer walk	Waiter carry	Pfister carry (i.e., both arms locked overhead carry)
	Zercher carry	Suitcase carry	Waiter carry and press
	Shopping cart carry	Hex bar carry	Yoke carry
	Goblet carry	Sandbag sling and carry	Log handle farmer
Core	Plank, side plank, and inverted plank	Get-up	Loaded get-up
	Superman, deadbug, and wall sit	Four corner bear crawl	Long bear crawl
		Loaded deadbug	Loaded wall sit
		Side plank and row	Anti-rotation