

Exercise Prescription for Older Adults with Special Conditions



Intended learning outcomes

To understand the principles of exercise prescription for older adults with chronic conditions (e.g., *Diabetes Mellitus, Hypertension, Osteoporosis, Arthritis and Frailty*).

To identify contraindications and modifications for exercise in medically complex older adults.

To apply the **FITT-VP principle** (Frequency, Intensity, Time, Type, Volume, Progression) to design individualized exercise programs.

To evaluate case scenarios to develop safe and effective exercise plans for older adults with special conditions.

To recognize the role of interdisciplinary collaboration (e.g., physicians, PTs, geriatric specialists) in optimizing exercise adherence .

Why Exercise Matters for Older Adults with Chronic Conditions

Benefits:

- Improves blood sugar control (Diabetes)
- Lowers blood pressure (Hypertension)
- Strengthens bones (Osteoporosis)
- Reduces joint pain (Arthritis)
- Prevents muscle loss (Frailty/Sarcopenia)

Key Principle: "Start Low, Go Slow"

General Exercise Guidelines (FITT-VP Principle)

Component	Recommendation
Frequency	3–5 days/week (aerobic), 2–3 days/week (strength)
Intensity	Moderate (Borg RPE 4–6/10)
Time	20–30 min/session (adjustable)
Type	Aerobic + Strength + Balance + Flexibility
Progression	Gradual (5–10% increase weekly)

Diabetes Mellitus – Key Recommendations

- **Exercise Prescription:**
- **Aerobic:** Walking, cycling (150 min/week)
- **Strength:** Resistance bands, bodyweight exercises
- **Balance:** Tai Chi (reduces neuropathy fall risk)
- **Special Considerations:**
- ✓ Monitor blood glucose before/after exercise
- ✗ Avoid exercise if glucose >250 mg/dL (with ketosis)
- **Visual:** Infographic showing exercise impact on insulin sensitivity.

Case Scenario- Type 2 Diabetes

- **Patient Profile:**
- **Age:** 68, HbA1c 7.8%, peripheral neuropathy.
- **Goal:** Improve glycemic control, prevent falls.
- **Design an exercise plan for this patient.**
 - Pre exercise assessment
 - Physical fitness assessment
 - Exercise prescription

Hypertension (HTN) – Key Recommendations

- **Exercise Prescription:**
- **Aerobic:** Brisk walking, swimming (≥ 30 min/day)
- **Strength:** Light weights (avoid heavy lifting)
- **Flexibility:** Stretching (improves vascular function)
- **Special Considerations:**
- ✓ Avoid **isometric exercises** (planks, heavy lifting)
- ✗ Stop if BP $> 200/110$ mmHg during exercise
- **Visual:** Graph showing BP reduction post-exercise.

Case Scenario: Managing Hypertension

- **Name:** Mrs. Eleanor Dawson
Age: 82
Gender: Female
Living Situation: Lives alone in a senior apartment; daughter visits weekly.
- **Medical History:**
 - Hypertension (diagnosed 20 years ago)
 - Type 2 Diabetes (HbA1c: 7.5%)
 - Mild cognitive impairment (MoCA score: 22/30)
 - History of one fall (6 months ago, no fracture)
- **Medications:**
 - Lisinopril 20 mg daily
 - Metformin 1000 mg BID
 - Acetaminophen PRN for joint pain
- **Design an exercise plan for this patient.**
 - **Pre exercise assessment**
 - **Physical fitness assessment**
 - **Exercise prescription**

Osteoporosis – Key Recommendations

- **Exercise Prescription:**
- **Weight-Bearing:** Walking, stair climbing
- **Strength:** Leg presses, back extensions
- **Balance:** Heel-toe walk, single-leg stands
- **Special Considerations:**
- **✗ Avoid forward bending/spinal twisting**
✓ Emphasize **posture exercises**
- **Visual:** Side-by-side images of safe vs. risky exercises.

Osteoarthritis (Knee/Hip) – Key Recommendations

- **Exercise Prescription:**
- **Low-Impact Aerobic:** Swimming, cycling
- **Strength:** Seated leg lifts, mini-squats
- **Flexibility:** Gentle dynamic stretches
- **Special Considerations:**
- ✓ Use **cushioned footwear**
- ✗ Avoid prolonged standing if painful

Case Scenario – Osteoarthritis

- **Patient Profile:**
- **Age:** 72, knee pain, BMI 28, sedentary.
- **Goal:** Reduce joint pain, improve mobility.
- **Design an exercise plan for this patient.**
 - Pre exercise assessment
 - Physical fitness assessment
 - Exercise prescription

Frailty/Sarcopenia – Key Recommendations

- **Exercise Prescription:**
- **Strength:** Seated leg lifts, arm curls (light weights)
- **Balance:** Chair-assisted stands, heel raises
- **Functional:** Sit-to-stand practice
- **Special Considerations:**
- ✓ Supervised sessions recommended
- ✗ Avoid unsupervised high-risk balance drills
- **Visual:** Progression from seated → standing exercises.

Case scenario- Frailty/Sarcopenia

- **Name:** Mr. James Wilson
- **Age:** 78
- **Gender:** Male
- **Living Situation:** Lives alone in a senior apartment; receives minimal assistance from family.
- **Medical History:**
 - Hypertension (controlled)
 - Type 2 Diabetes (HbA1c: 7.2%)
 - Osteoarthritis (knees and hips)
 - Mild cognitive impairment (MMSE: 24/30)
- **Medications:**
 - Metformin 1000 mg BID
 - Lisinopril 10 mg daily

- **Design an exercise plan for this patient.**
 - **Pre exercise assessment**
 - **Physical fitness assessment**
 - **Exercise prescription**

References

- ACSM Guidelines for Older Adults.
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Thank You

