

PREVENTING SARCOPENIA IN OLDER ADULTS WITH T2D AND OBESITY TREATED WITH GLP-1 RA

EXPLORING EXERCISE AND NUTRITION STRATEGIES IN AN ONGOING RCT

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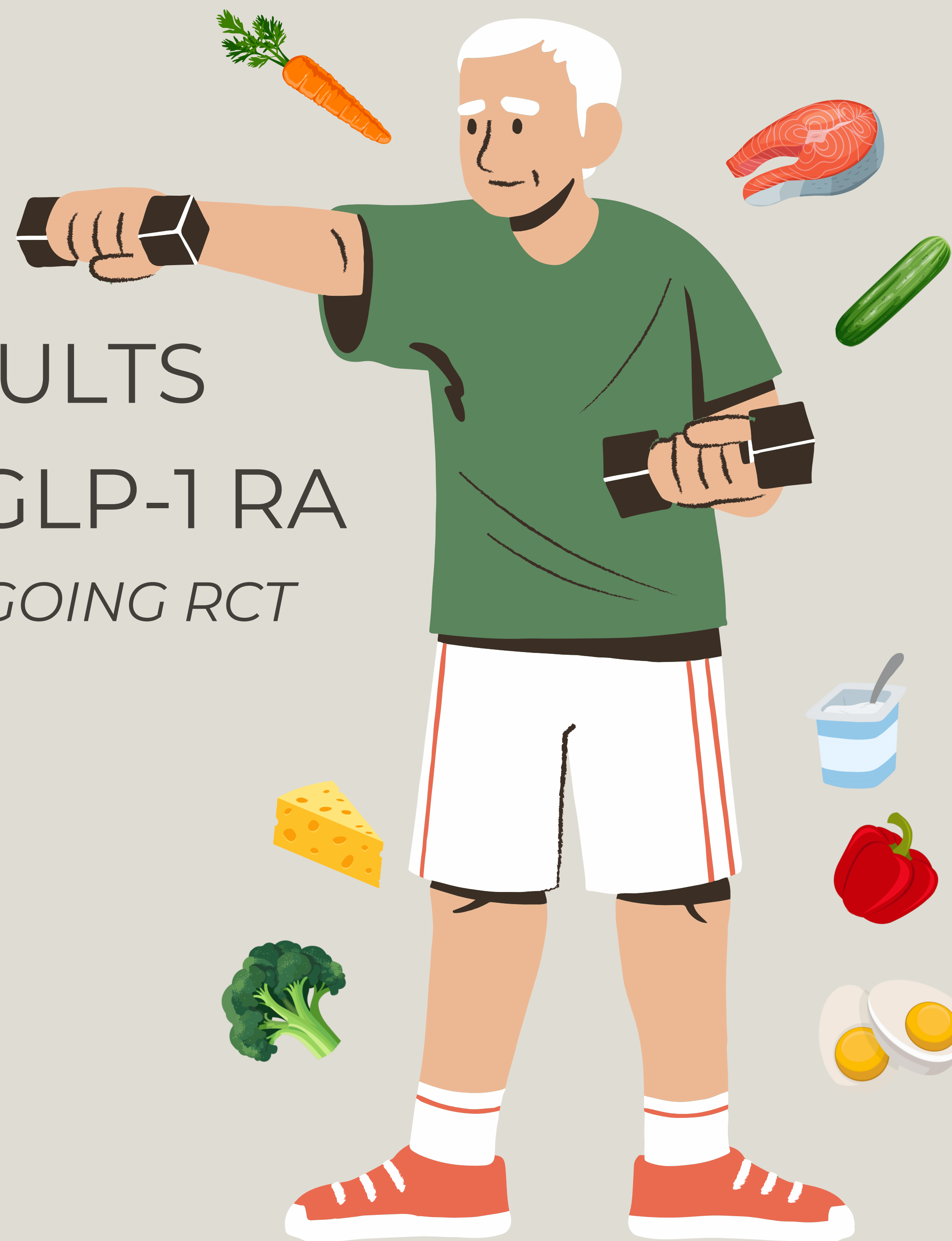
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INTRODUCTION

Type 2 diabetes (T2D) is a growing global health concern, particularly among older adults. Combined with aging, T2D significantly raises the risk of sarcopenia - the progressive loss of muscle mass, strength, and function. GLP-1 receptor agonists (GLP-1 RAs), widely used for weight loss in T2D and obesity, may further contribute to muscle loss. The cumulative impact of aging, T2D, and pharmacologically induced weight loss, increases the risk of frailty, falls, and functional decline (Figure 1). Although exercise and nutrition are the most effective strategies to counteract sarcopenia, their role alongside GLP-1 RAs - especially in older adults - remains unclear, highlighting the need for tailored interventions that preserve muscle health during weight loss.

METHODS

- Design:** Ongoing 26-week RCT; target enrollment: 60 adults ≥ 65 years with T2D and obesity (18 enrolled to date; see Figure 2).
- Randomization:** 1:1, stratified by sex and age (65–80, ≥ 80).
- Study Arms:**
 - Intervention: Home-based exercise + nutritional counseling.
 - Control: General health recommendations.
- Treatment:** All participants receive once-weekly semaglutide (dose escalated to 2.4 mg).
- Assessments:**
 - MRI and DXA; physical performance tests (STS, handgrip, TUG, SPPB, 10MWT, 6MWT), at baseline, weeks 8, 16 and 26.
 - Blood and urine samples; muscle biopsy; cognitive evaluation; frailty and QoL questionnaires; at baseline and week 26.
- Follow-up:** Phone call on week 39.

STUDY AIM

To investigate whether a multidisciplinary intervention combining exercise and nutrition can mitigate declines in muscle strength, mass, and physical function in older adults with T2D and obesity undergoing GLP-1 RA treatment.

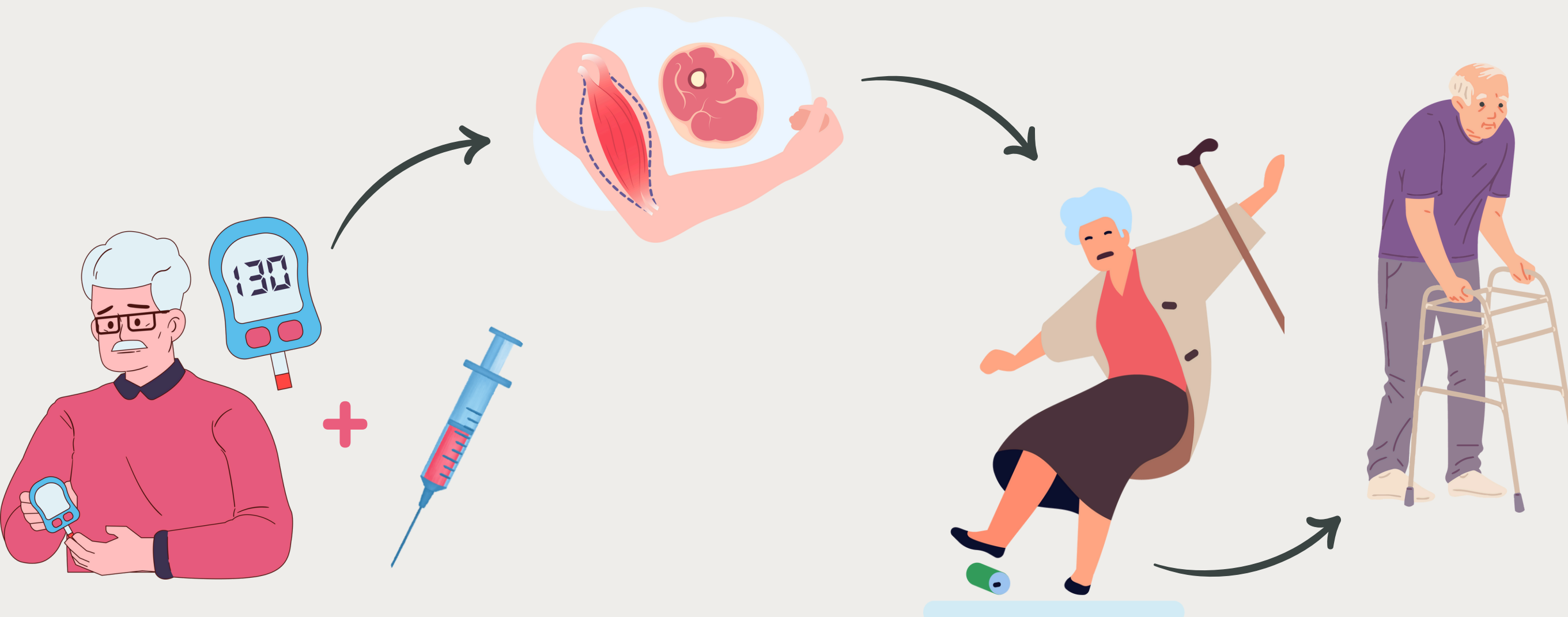


Figure 1: Combined Effects of T2D, Aging, and GLP-1 RAs on Muscle Health

SIGNIFICANCE

As new therapeutic approaches using GLP-1 RAs for the treatment of T2D and obesity emerge, it is crucial to assess their potential side effects, particularly in relation to muscle mass preservation. Older adults with T2D face an elevated risk of sarcopenia, which impacts mobility, quality of life, and fall risk, potentially leading to greater morbidity and mortality. This study seeks to provide evidence-based strategies to optimize patient care by integrating interventions designed to prevent and mitigate functional deterioration in this population. As the trial is ongoing, results are not yet available, with outcomes expected to address this critical knowledge gap.

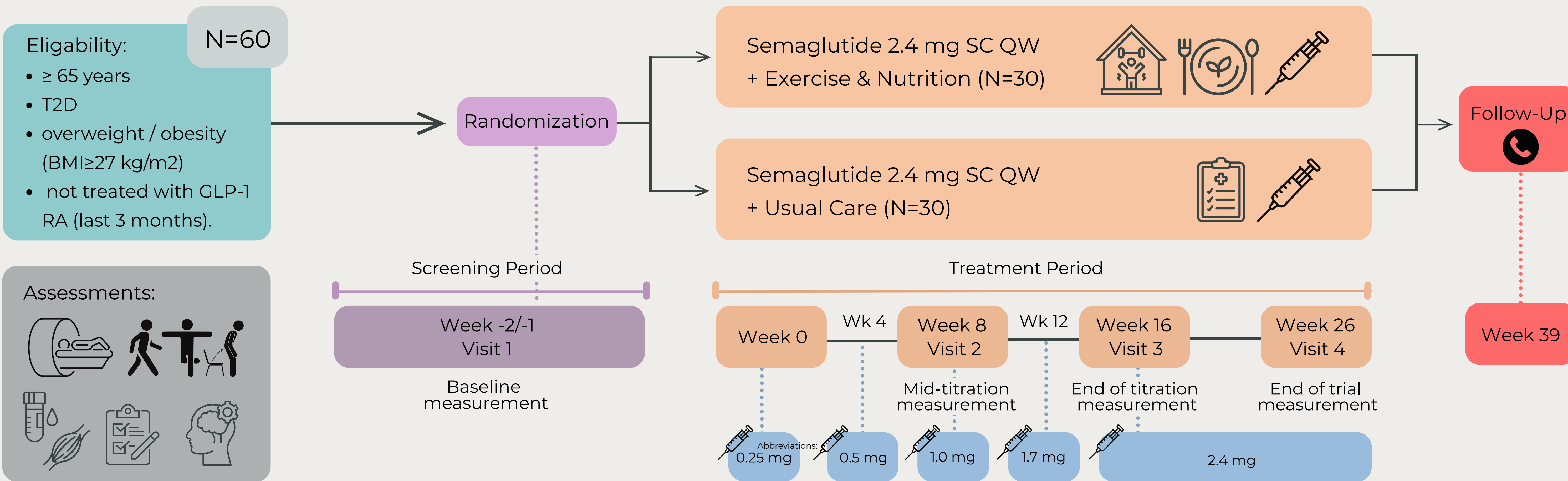


Figure 2: Study flow and design

Abbreviations: RCT - randomized controlled trial; MRI - magnetic resonance imaging; DXA - dual-energy X-ray absorptiometry; STS - sit-to-stand; TUG - timed up-and-go; SPPB - Short Physical Performance Battery; 10MWT - 10-meter walk test; 6MWT - 6-minute walk test; QoL - quality of life; SC - subcutaneous; QW - once weekly.

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