

## Weight Loss and Symptom Improvement in Women with Secondary Lymphedema Using Semaglutide

**Authors :** Shivani Thakur, Jasmin Dominguez Cervantes, Ahmed Zabiba, Fatima Zabiba, Sandhini Agarwal, Kamalpreet Kaur, Hussein Maatouk, Shae Chand, Omar Madriz, Tiffany Huang, Saloni Bansal

**Abstract :** The prevalence of lymphedema in women in rural communities highlights the importance of developing effective treatment and prevention methods. Subjects with secondary lymphedema in California's Central Valley were surveyed at 6 surgical clinics to assess demographics and symptoms of lymphedema. Additionally, subjects on semaglutide treatment for obesity and/or T2DM were monitored for their diabetes management, weight loss progress, and lymphedema symptoms compared to subjects who were not treated with semaglutide. The subjects were followed for 12 months. Subjects who were treated with semaglutide completed pre-treatment questionnaires and follow-up post-treatment questionnaires at 3, 6, 9, 12 months, along with medical assessment. The untreated subjects completed similar questionnaires. The questionnaires investigated subjective feelings regarding lymphedema symptoms and management using a Likert-scale; quantitative leg measurements were collected, and blood work reviewed at these appointments. Paired difference t-tests, chi-squared tests, and independent sample t-tests were performed. 50 subjects, aged 18-75 years, completed the surveys evaluating secondary lymphedema: 90% female, 69% Hispanic, 45% Spanish speaking, 42% disabled, 57 % employed, 54% income range below 30 thousand dollars, and average BMI of 40. Both treatment and non-treatment groups noted the most common symptoms were leg swelling ( $\bar{x}=3.2$ ,  $_d=1.3$ ), leg pain ( $\bar{x}=3.2$ ,  $_d=1.6$ ), loss of daily function ( $\bar{x}=3$ ,  $_d=1.4$ ), and negative body image ( $\bar{x}=4.4$ ,  $_d=0.54$ ). Subjects in the semaglutide treatment group >3 months of treatment compared to the untreated group demonstrated: 55% subject in the treated group had a 10% weight loss vs 3% in the untreated group (average BMI reduction by 11% vs untreated by 2.5%,  $p<0.05$ ) and improved subjective feelings about their lymphedema symptoms: leg swelling ( $\bar{x}=2.4$ ,  $_d=0.45$  vs  $\bar{x}=3.2$ ,  $_d=1.3$ ,  $p<0.05$ ), leg pain ( $\bar{x}=2.2$ ,  $_d=0.45$  vs  $\bar{x}=3.2$ ,  $_d=1.6$ ,  $p<0.05$ ), and heaviness ( $\bar{x}=2.2$ ,  $_d=0.45$  vs  $\bar{x}=3$ ,  $_d=1.56$ ,  $p<0.05$ ). Improvement in diabetes management was demonstrated by an average of 0.9 % decrease in A1C values compared to untreated 0.1 %,  $p<0.05$ . In comparison to untreated subjects, treatment subjects on semaglutide noted 6 cm decrease in the circumference of the leg, knee, calf, and ankle compared to 2 cm in untreated subjects,  $p<0.05$ . Semaglutide was shown to significantly improve weight loss, T2DM management, leg circumference, and secondary lymphedema functional, physical and psychosocial symptoms.

**Keywords :** diabetes, secondary lymphedema, semaglutide, obesity

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