**Impact of Semaglutide on Body Composition in Adults with Overweight or Obesity: Exploratory Analysis of the STEP 1 Study**

Rhodri King\(^1\); John P.H. Wilding\(^2\); Rachel L. Batterham\(^3\); Salvatore Calanna\(^4\); Luc F. Van Gaal\(^5\); Julio Rosenstock\(^7\); Marie T.D. Tran\(^4\); Sean Wharton\(^8\); Koutaro Yokote\(^9\); Niels Zeuthen\(^4\); Robert F. Kushner\(^10\)

**Aim**
- Central obesity is associated with increased risk of cardiometabolic disease.\(^1\)
- Weight loss reduces lean muscle mass, potentially impacting resting energy expenditure and/or physical functioning.\(^2\)
- This analysis of the randomised, double-blind STEP 1 study evaluated the impact of semaglutide, a glucagon-like peptide-1 analog, on body composition in adults with overweight/obesity using dual energy X-ray absorptiometry (DEXA).

**Methods**
- STEP 1 randomised 1,061 adults with body mass index (BMI) ≥30 kg/m\(^2\), or ≥27 kg/m\(^2\) with ≥1 weight-related comorbidity, without diabetes, to receive semaglutide 2.4 mg once-weekly vs placebo (2:1), plus lifestyle intervention, for 68 weeks.
- A subset of 140 participants with BMI ≥40 kg/m\(^2\) from 9 sites were included in the DEXA substudy.

**Key results**

| Table 1: Baseline characteristics in the DEXA subpopulation |
|-----------------|-----------------|-----------------|
| **Semaglutide (N=95)** | **Placebo (N=45)** |
| **Age, years** | 50.3 ± 12.2 | 52.1 ± 13.9 |
| **Female, n (%)** | 72.75 (61) | 74.11 (33) |
| **Body weight, kg** | 98.6 ± 15.9 | 98.7 ± 12.1 |
| **BMI, kg/m\(^2\)** | 34.9 ± 3.3 | 35.0 ± 3.6 |
| **Waist circumference, cm** | 109.4 ± 10.6 | 111.0 ± 10.1 |
| **Body composition (DEXA)** |  |  |
| **Total fat mass, kg** | 52.4 ± 11.6 | 51.5 ± 10.8 |
| **Regional visceral fat mass, %** | 33.8 ± 9.9 | 36.3 ± 12.3 |
| **Regional visceral fat mass, kg** | 1.3 ± 0.6 | 1.5 ± 0.7 |
| **Total lean body mass, %** | 43.5 ± 9.2 | 44.6 ± 8.1 |
| **Total lean body mass, kg** | 53.9 ± 7.4 | 52.7 ± 7.7 |

Data are mean ± standard deviation unless indicated otherwise.

- BS body composition was similar in the treatment groups (Table 1).
- Change in body weight from BL to week 68 was -15.0% with semaglutide vs -3.6% with placebo.
- Weight loss with semaglutide resulted in reductions from BL in total fat mass of 19.3% and regional visceral fat mass of 27.4%, leading to 3.5%-point and 2.0%-point reductions in the proportions of total fat mass and visceral fat mass, respectively (Figure 1).
- Total lean body mass decreased from BL by 9.7% with semaglutide; however, relative to total body mass the proportion of lean body mass increased by 3.0%-points.

**Conclusion**
- In adults with overweight/obesity, once-weekly semaglutide 2.4 mg was associated with reduced total fat mass and regional visceral fat mass, and a relatively increased proportion of lean body mass.
- Greater weight loss was associated with greater improvement in body composition (total lean body mass to total fat mass ratio).
- Further results can be found in the STEP 1 primary publication.\(^3\)

**References:**

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Semaglutide 2.4 mg reduces total fat mass and regional visceral fat mass, and increases the proportion of lean body mass in adults with overweight or obesity.

**Key results**

- There were no major changes in body composition with placebo.
- By week 68, total fat mass and total lean body mass proportions were 39.4% and 57.4% with semaglutide vs 44.2% and 53.0% with placebo.
- Relative to the region assessed, the proportion of visceral fat mass at week 68 was 31.6% vs 35.6% in semaglutide and placebo groups.
- Total lean body mass to total fat mass ratio increased from BL to week 68 in the semaglutide group (Table 2).
- Greater improvements in lean body mass to fat mass ratio were observed with greater weight loss in the semaglutide group (Figure 2 and Table 2).

**Figure 1:** Change in body composition from baseline to week 68.

- Baseline (%) increases were observed in the semaglutide group compared to placebo (Figure 1).

**Figure 2:** Change from baseline to week 68 in ratio of lean body mass to total fat mass.

- Greater improvements in lean body mass to fat mass ratio were observed with greater weight loss in the semaglutide group (Figure 2 and Table 2).

- In adults with overweight/obesity, once-weekly semaglutide 2.4 mg was associated with reduced total fat mass and regional visceral fat mass, and a relatively increased proportion of lean body mass.
- Greater weight loss was associated with greater improvement in body composition (total lean body mass to total fat mass ratio).
- Further results can be found in the STEP 1 primary publication.\(^3\)