How to Select Optimal Needle Length for Subcutaneous Immune Globulin Infusions (SCIG)

**Background:**
To avoid local skin reactions when giving SCIG infusion, it is important to select the optimal needle length. Today, there are no tools or guidelines available to help select the optimal needle length. Instead, the practice is through clinical experience and tradition. One of the most common questions among health care providers is related to which needle length should be used.

**Objective:**
To create guidelines for needle length selection when administering SCIG infusions.

**Methods:**
Questionnaires were used to gather patient data from three different infusion treatments to assess the patients' subcutaneous fat layer and develop a correlation between it and optimal needle length. Data was collected on: 1) body mass index (BMI), 2) skin depth measure using a caliper, 3) gripping skin by hand, and 4) the patient’s selection of own body shape using the three somatotypes; Endomorph, Mesomorph and Ectomorph.

**Results:**
57 patients reported outcomes from 166 infusions. BMI in relation to subcutaneous fat layer on different parts of the body is highly variable. It is difficult for the patient to assess own body shape and to use a caliper to measure subcutaneous fat layer. Patients’ measurements show that the skin depth can be very different on the stomach versus on the thighs.

**Conclusion:**
- The creation of a guideline is still an ongoing process.
- We have found factors that need further research which affect selection of the optimal needle length for SCIG therapy. Selection should be made by the health care professional.
- Same patient might need different needle lengths for thighs versus stomach.

**References:**
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**BMI Class**
- Underweight
- Normal
- Overweight
- Obese

**Average in Difference Using Caliper**
- 1.75 mm
- 21.8 mm

**Average Smallest Difference**
- 1.75 mm

**Average Largest Difference**
- 21.8 mm

**BMI is not an accurate tool when trying to find the optimal needle length.**

**Summary of Study Findings:**
- The creation of a guideline is still an ongoing process.
- We have found factors that need further research which affect selection of the optimal needle length for SCIG therapy. Selection should be made by the health care professional.
- Same patient might need different needle lengths for thighs versus stomach.

**Patient Data**

**Body Shape Results**

42% Ectomorph
42% Mesomorph
16% Endomorph

**Difference of measurements using caliper on stomach vs. thigh**
- Needle lengths may be required due to different depths in the sub-q layer.