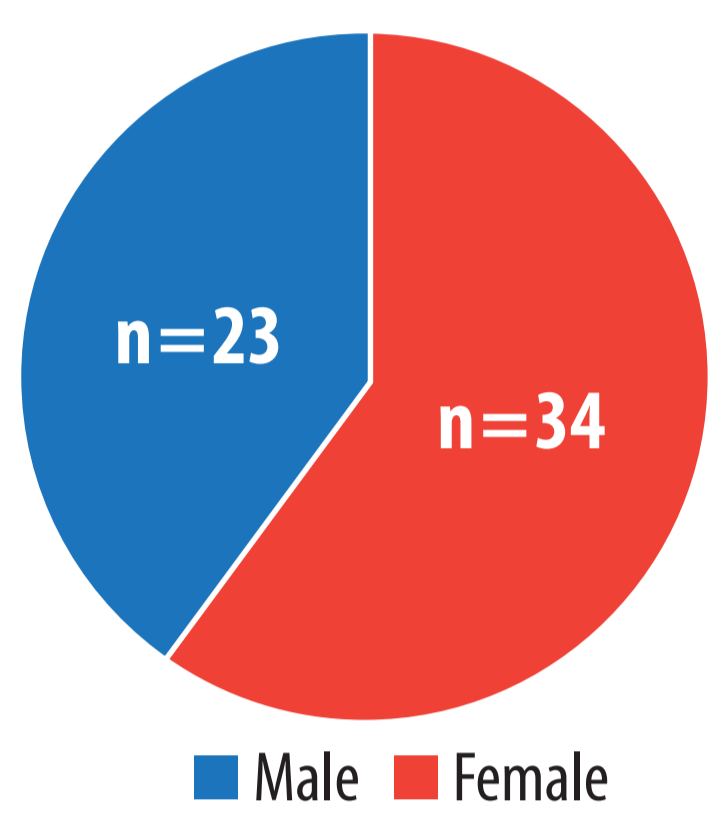


How to Select Optimal Needle Length for Subcutaneous Immune Globulin Infusions (SCIg)

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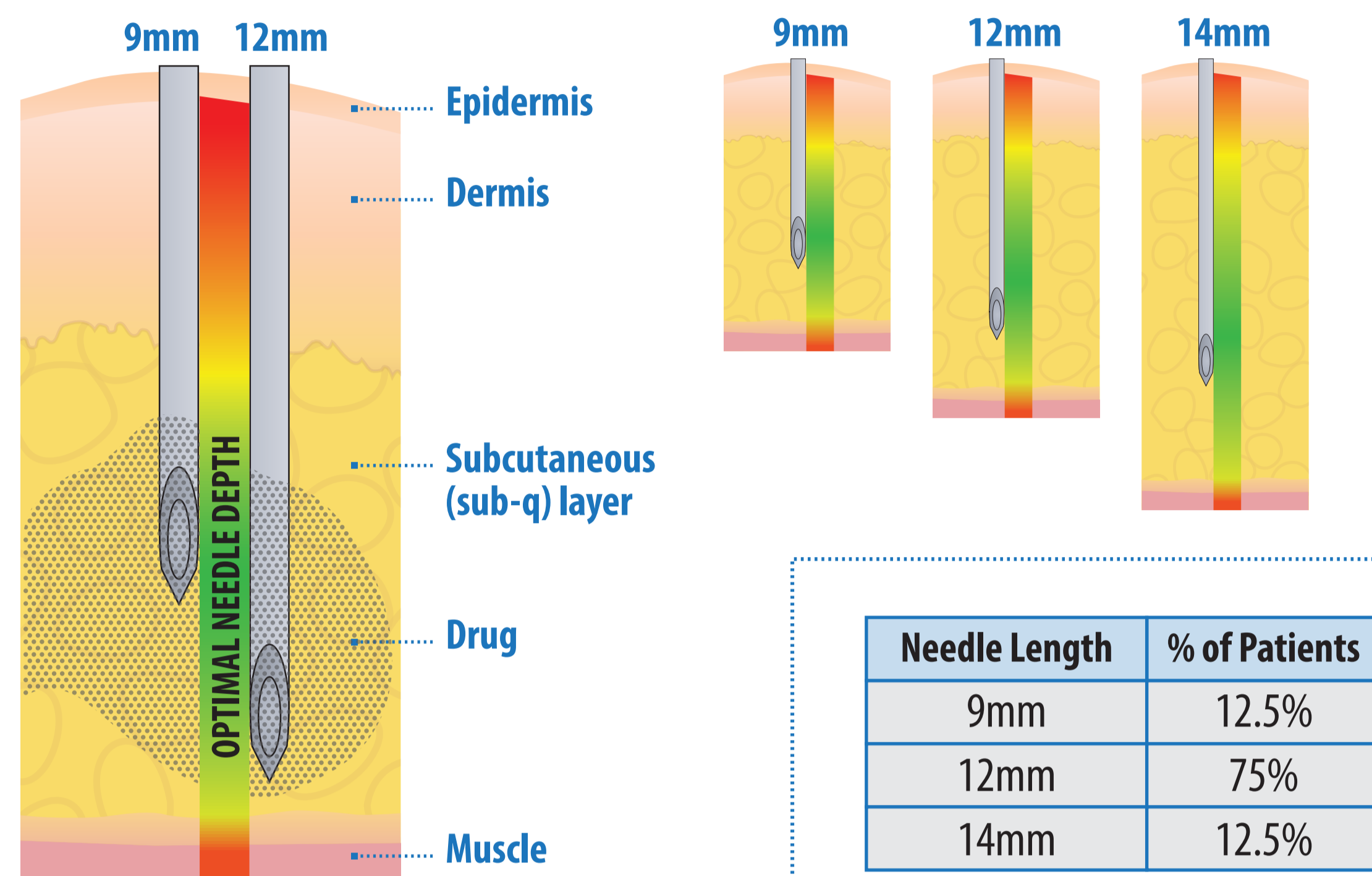
Patient Background

57 Patients in Study:

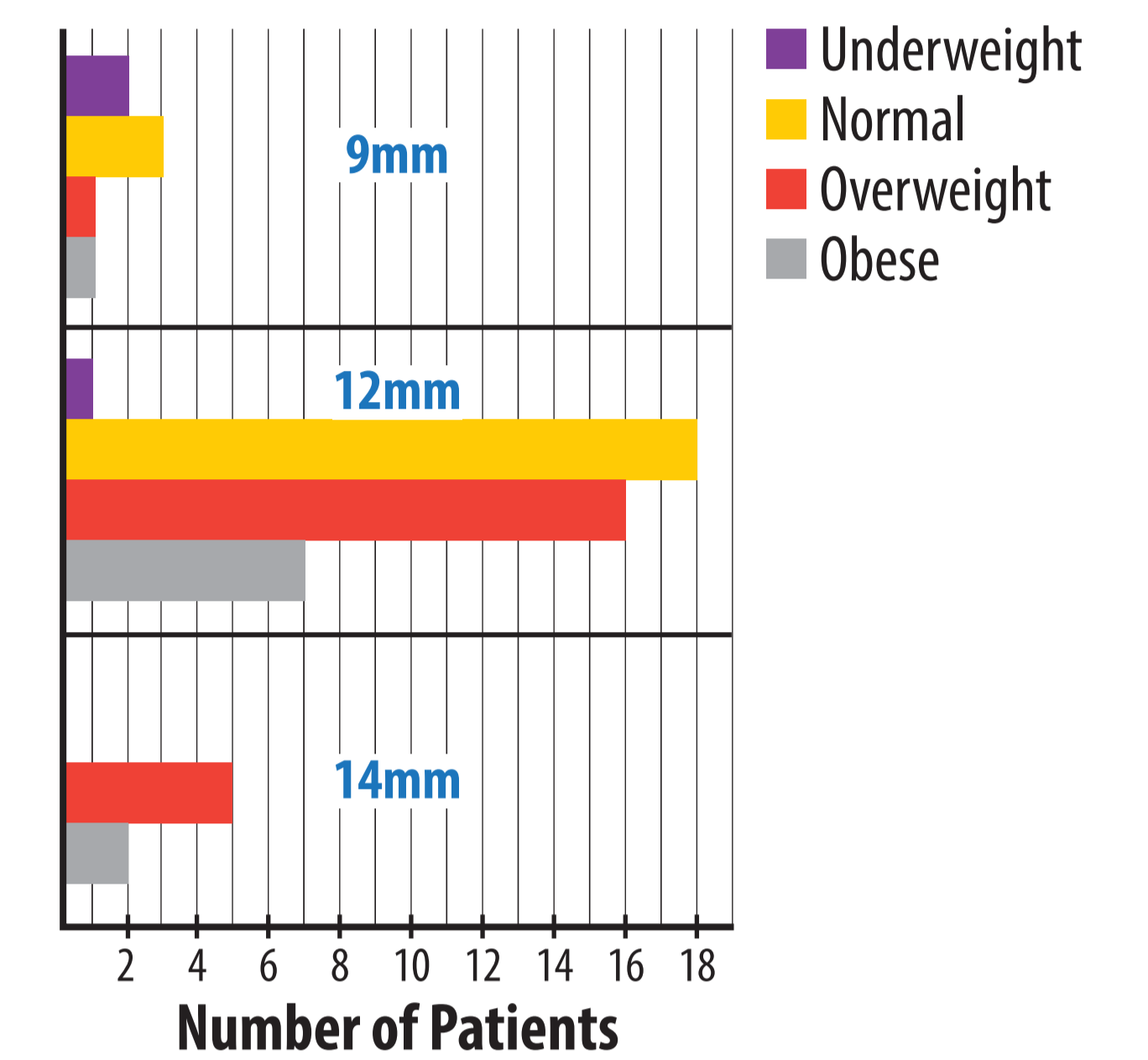


Starting Year of SCIg	n of Patients
2010 - 2015	31
2009 - 2000	13
1999 - 1986	13

Needle Lengths for SCIg Infusions:



Needle Lengths Used in Study



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.
- BMI is not precise enough for selecting needle length.
- Measuring subcutaneous fat layer requires skill in the method to select 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:

- S. Jolles, J.S. Orange, A. Garduff, M.R. Stein, R. Shapiro, M. Borte and M. Berger, 2014. Current treatment options with Igg for the individualization of care in patients with PID. British society for Immunology, Clinical and experimental immunology 179: 146-160
- R.L. Wasserman, 2008. Common infusion-related reactions to subcutaneous immunoglobulin therapy: Managing patient expectation, Patient Preference and Adherence 2: 163-166
- Ochoa D, Curtis C, Duff C, Riley P, Murphy E and Zampelli A. 2012. Importance of ancillary supplies for subcutaneous immunoglobulin infusions: Management of the local infusions site. Journal of Clinical Immunology 32 (Supplement 1): 347
- Sealfon A and Baker P.M. 2012. Impact of needle sets on patient infusion site reactions from delivery of subcutaneous IgG (SCIg). Journal of Clinical Immunology 32 (Supplement 1): 405
- Skoda-Smith S, Torgerson T.R. and Ochs H.D. 2010. Subcutaneous immunoglobulin replacement therapy in the treatment of patients with primary immunodeficiency disease. Therapeutics and Clinical Risk Management 2010 (6): 1-10
- Gruenemeier P, Ernst C, Palagashvili T and Duff K. 2016. Needle length considerations during Hyaluronidase-Facilitated SCIg (IGHyHyQvia) Treatment. Infusions Nurses Society, May 14-16.

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Disclosure:

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:
 Ramona Fust, RN, BSN: University Hospital in Linköping, Department of Infectious Diseases
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Methods Used to Measure Sub-q Layer:

1 Calculating the patient's BMI

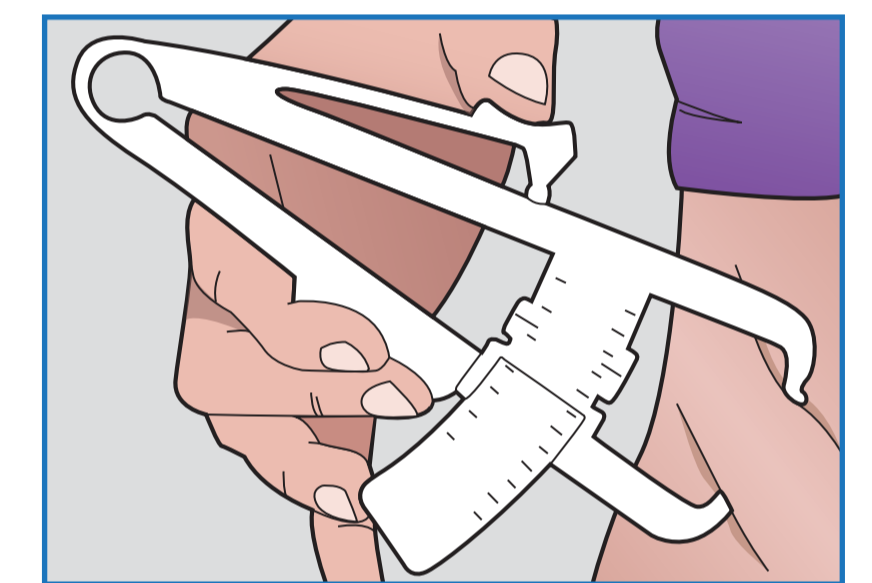
$$BMI = \frac{\text{Weight (kg)}}{\text{Height}^2 (\text{m}^2)}$$

-or-

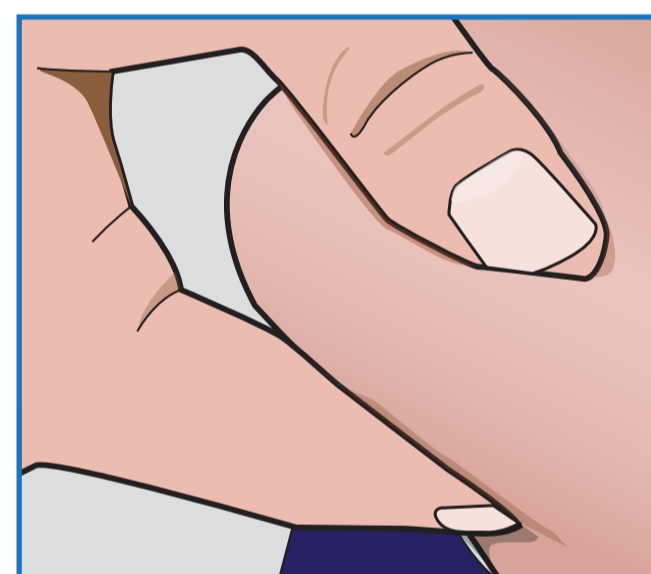
$$BMI = \frac{\text{Weight (lb)} \times 703}{\text{Height}^2 (\text{in}^2)}$$

Underweight	< 18.5
Normal	18.5 - 24.9
Overweight	25 - 29.9
Obese	> 30

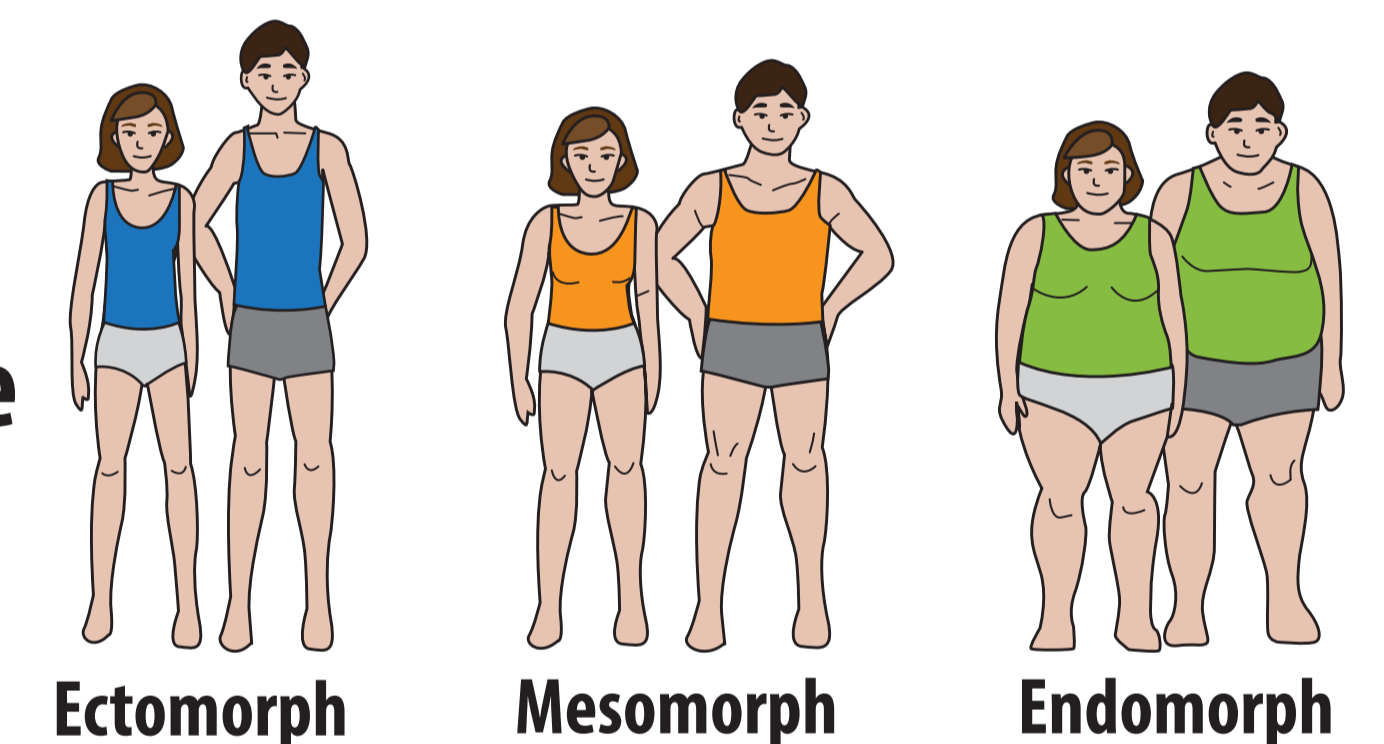
2 Use of a caliper



3 Gripped skin by hand

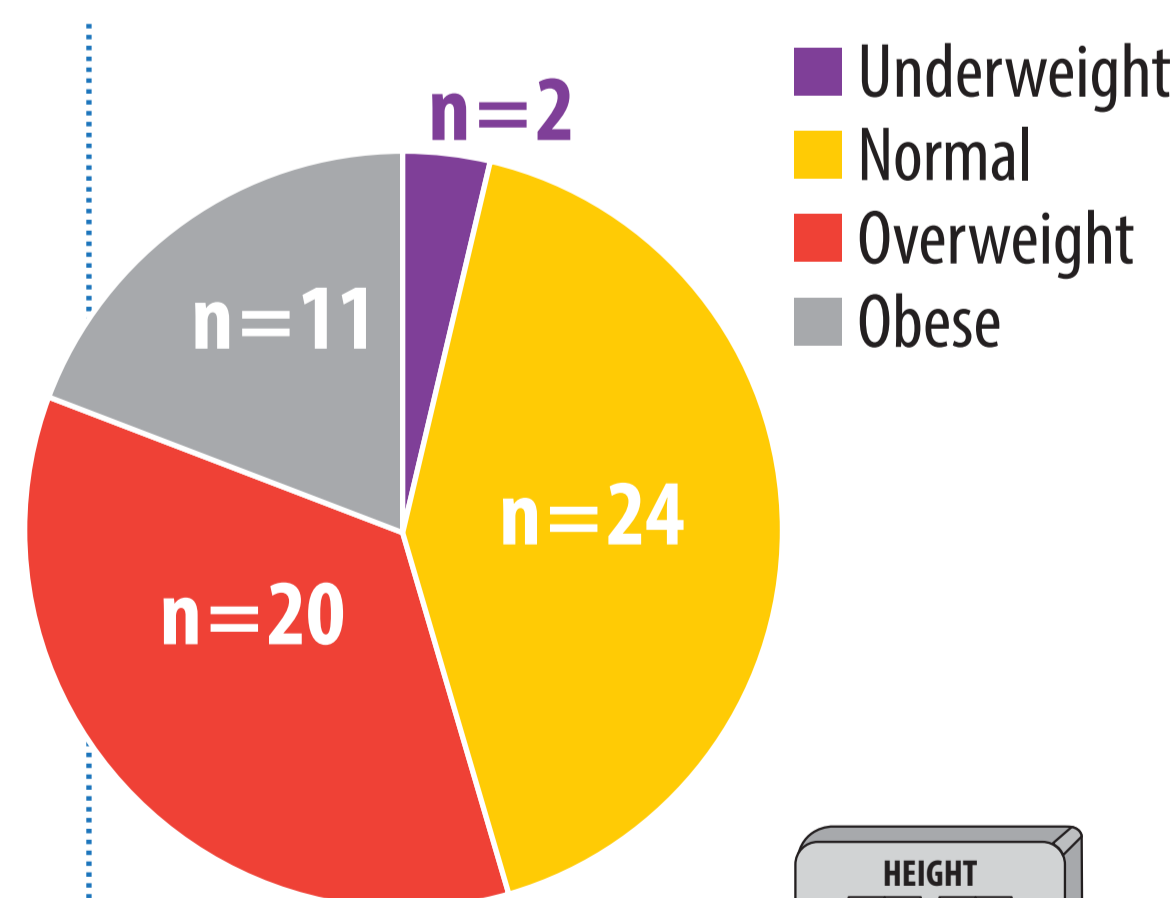


4 Patient selected body type in survey

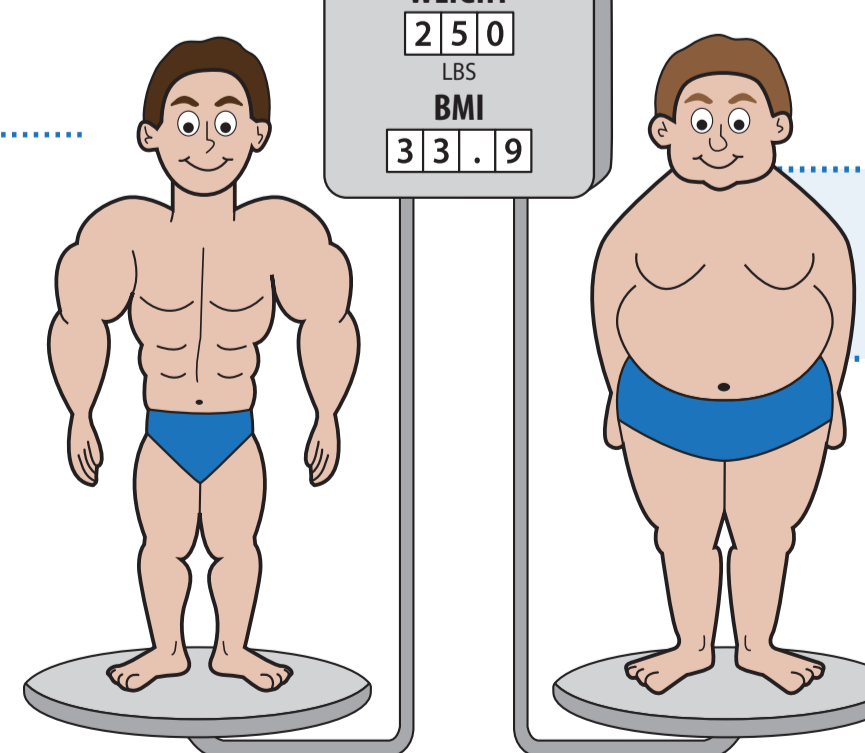
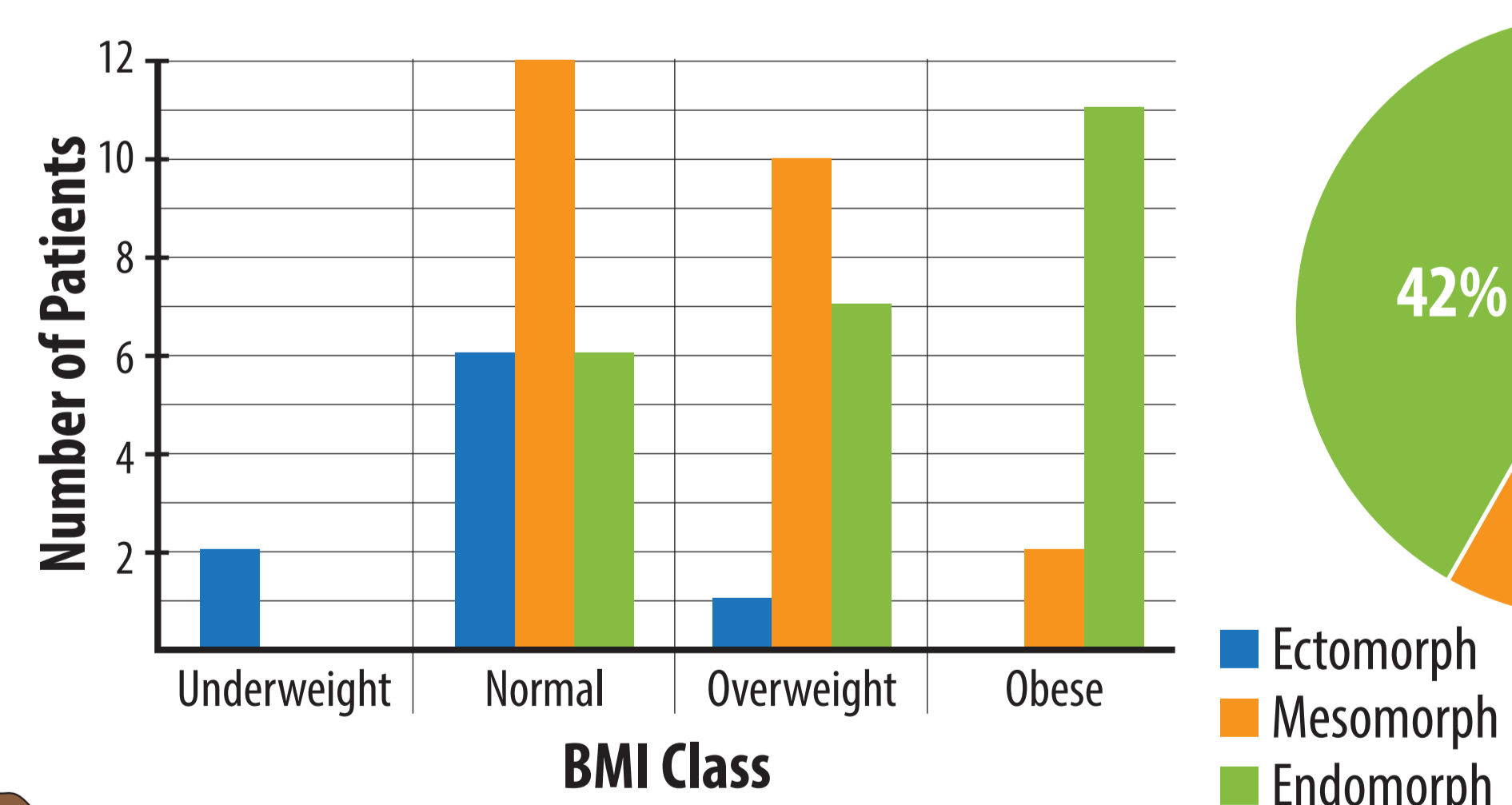


Summary of Study Findings:

Patient BMI Data



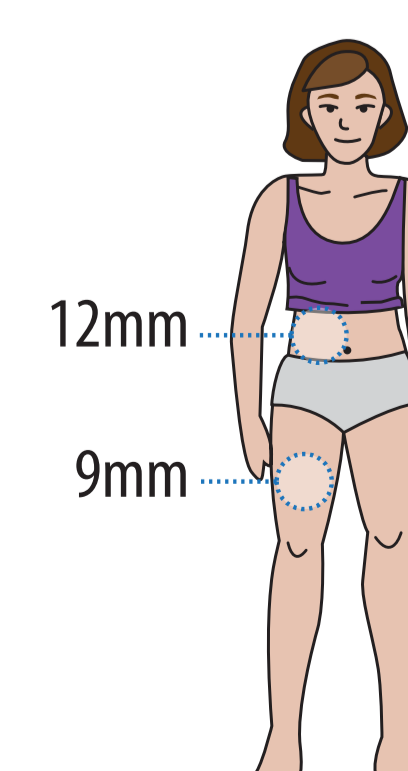
Body Shape Results



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

Average in Difference Using Caliper

Average Smallest Difference	Average Largest Difference
1.75 mm	21.8 mm



Difference of measurements using caliper on stomach vs. thigh

Different needle lengths may be required due to different depths in the sub-q layer.