(2) Which sites should be used for insulin injection?

Special Consideration

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2. Which sites should be used for insulin injection?

Special Consideration

1 Injection points should not be massaged after injection[6,25,55,67] (II B)

2 ~~Pregnant patients who continue to inject into the abdomen should give all injections with skin fold[2,22](III B)~~

2 Pregnant patients who continue to inject into the abdomen during the second and third trimester should administer all injections with a raised skinfold.[6,28,38,60] (III B)

Special Consideration

1. Injection points should not be massaged after injection [6,25,55,67] (II B)

- Dillon observed that eight lean, well-control type 1 diabetes, using their regular and intermediate-acting insulin, who massaged their insulin injection sites with electronic vibrator for 3min at 15min post-injection.
- serum glucose levels fell down 8.3% lower ($P<0.05$) 30min after massage and 44 min post-injection compared to the control day.
- 2-year follow up data: 8 type 1 + 18 others
  - 3 min message at each meal to achieve a beneficial postprandial glucose. After 3-6 month, HbA1c from 10.56±1.73 to 8.55±1.69%. After 12 -18months, further improved to 8.41±1.58% ($p<0.001$) from baseline.

25. Ezzo, J., T. Donner, D. Nickols, and M. Cox. "Is Massage Useful in the Management of Diabetes? A Systematic Review." Diabetes Spectrum 14.4 (2001): 218-24. Print. Cat II

Special Consideration

1. Injection points should not be massaged after injection [6,25,55,67] (II B)

Dissociation of Insulin Absorption and Blood Flow During Massage of a Subcutaneous Injection Site

B. LINDE, MD

Nine healthy volunteers with normal body weights were injected subcutaneously with ^{125}I-labeled soluble human insulin (10 U) in one thigh and ^{133}Xe in the contralateral thigh for the measurement of subcutaneous blood flow on 2 consecutive mornings. On one of the days, standardized massage of both injection sites was performed for 30 min starting 30 min after insulin injection. Serum insulin and plasma glucose were determined intermittently before, during, and after massage, and elimination of radioactivities was monitored continuously by external detectors. During massage, the first-order elimination rate constants of ^{125}I increased approximately sixfold compared with the rise during control (0.19 ± 0.04 to 0.88 ± 0.15%/min during the last 15 min of the massage vs. 0.21 ± 0.03 to 0.32 ± 0.03%/min during control). Serum insulin increased from 13.8 ± 1.8 mU/L before massage to a maximal value of 56.4 ± 8.7 mU/L 10 min after massage (vs. 15.3 ± 3.0 and 19.7 ± 2.2 mU/L during control). Plasma glucose fell significantly faster on the massage day, from 10 min after massage onward. No significant alteration in the subcutaneous blood flow was found during or after massage. The results suggest that the pronounced enhancement of insulin absorption induced by massage of the injection site is mainly not blood flow mediated. DIABETES CARE 1986; 9:570–74.

Linde, B. Dissociation of Insulin Absorption and Blood Flow During Massage of a Subcutaneous Injection Site. Diabetes Care,9.6.(1986) 570-574. Cat II

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Dissociation of Insulin Absorption and Blood Flow During Massage of a Subcutaneous Injection Site

- Conclusion: Plasma glucose fell significantly faster on the massage day, from 10 min after massage onward. No significant alteration in the subcutaneous blood flow was found during or after massage. The results suggest that the pronounced enhancement of insulin absorption induced by massage of the injection site is mainly not blood flow mediated.

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Special Consideration

1. Injection points should not be massaged after injection [6,25,55,67] (II B)

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- Massaging the injection site either before or after injecting could increase the rate of absorption of insulin and therefore is not generally recommended.[14]

ADEA (2011). ADEA Clinical Recommendations: Subcutaneous Injection Technique for Insulin and Glucagon-like Peptide 1. Cat III

- Conclusion statement

Injection points should not be massaged after injection [6,25,55,67] (II B)

Special Consideration

2. Pregnant patients who continue to inject into the abdomen during the second and third trimester should administer all injections with a raised skinfold.[6,28,38,60] (III B)

Frid A (2016) P.7, ADEA (2019)

First trimester

- Women should be reassured that no change in insulin site or technique is needed.

Second trimester:

- Insulin can be injected over the entire abdomen as long as properly raised skinfolds are used. Lateral aspects of the abdomen can be used to inject insulin when no skinfold is raised.

Third trimester:

- Injections can be given into the lateral abdomen as long as they are made into properly raised skinfolds.

Frid A et al. New insulin delivery recommendations. In Mayo Clinic Proceedings. Mayo Clin Proceedings 2016, September; 91.9:1224-1230

Australian Diabetes Educators Association (ADEA) Clinical guiding principle for subcutaneous injection technique. Canberra: 2019. Cat III

Special Consideration

2. Pregnant patients who continue to inject into the abdomen during the second and third trimester should administer all injections with a raised skinfold.[6,28,38,60] (III B)

FIT UK (2016), P.27 FIT Ireland (2017) P.13,

First trimester:
Women should be reassured that no change in insulin site or technique is needed.

Second trimester:
Lateral parts of the abdomen can be used to inject insulin.

Third trimester:
Insulin can be injected over the abdomen while ensuring that a skin fold is properly raised

Hicks D., Adam D., Gelder C and Diggle J. Diabetes Care in the UK. The UK Injection & Infection Techniquie Recommendations. 2016 4th Edition

Monloney Y, Burke H, Brown S, Murphy P, Twamley , Twamley H. Diabetes Care in Ireland. Irish Injection & Infusion technique recommendation. 2017 2nd Edition

FIT UK (2016) P.10

Acknowledgment

The New Insulin Injection and Infusion Recommendations for Patients with Diabetes: Frid AH, Kreugel G, Grassi G, et al. New insulin delivery recommendations. Mayo Clin Proc. September 2016;91(9):1231-1255. informed these recommendations and we thank the editors of the Mayo Clinic for permission to use material from this article.

FIT Ireland (2017) P.6

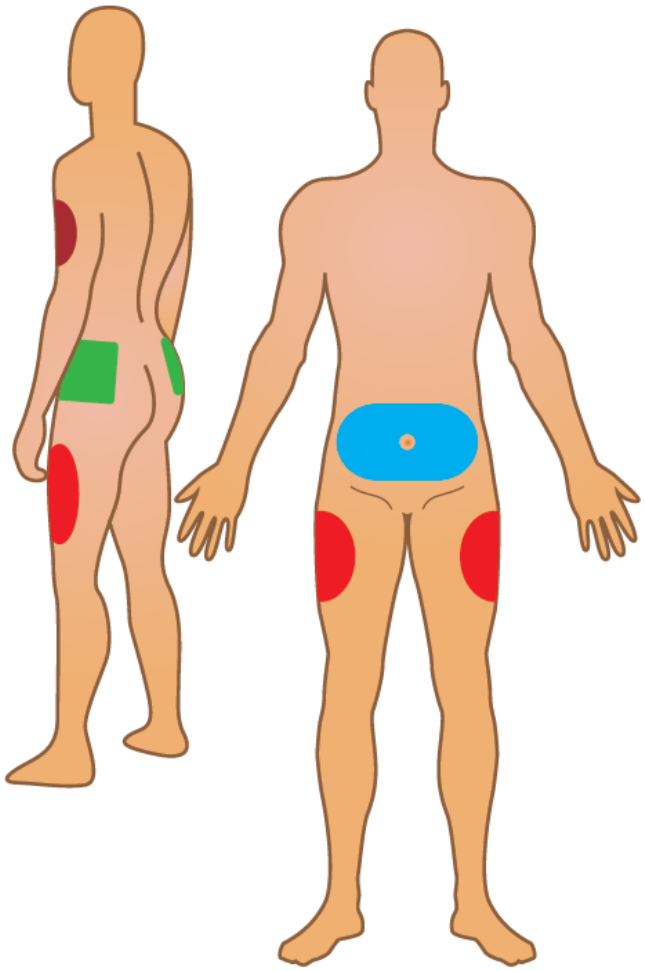
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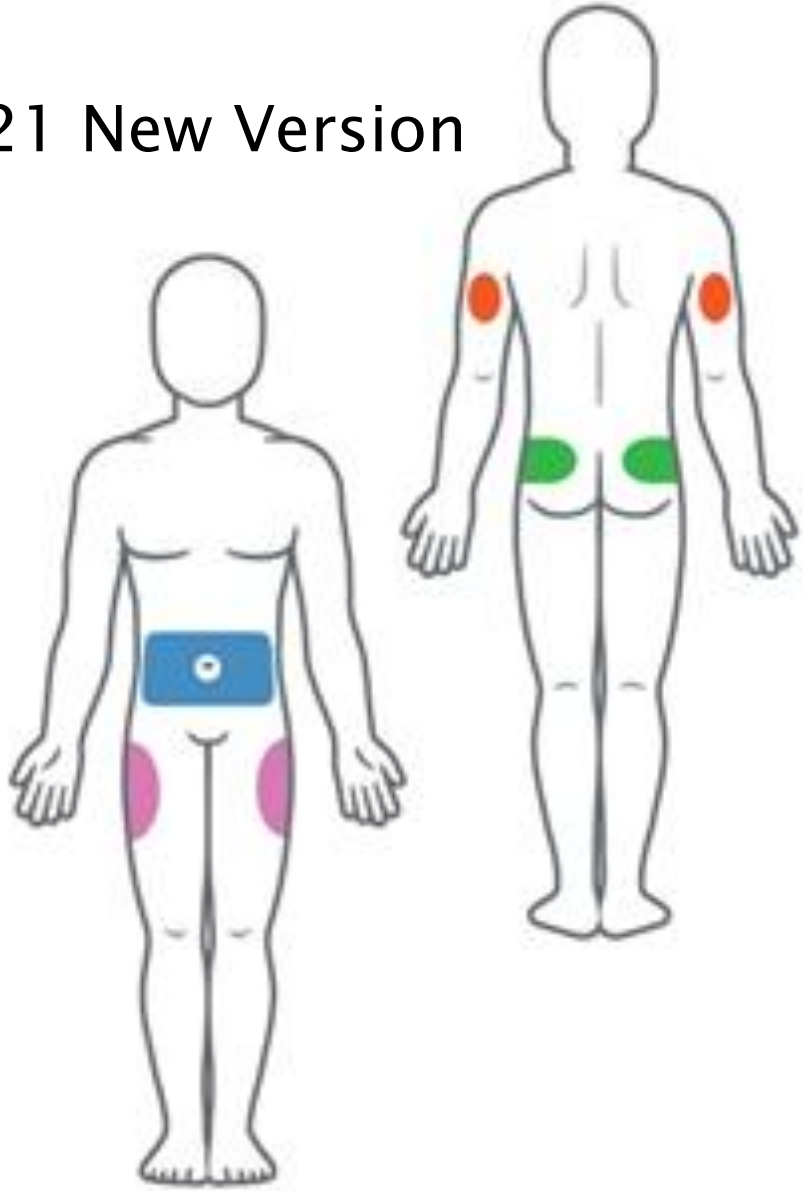
- Conclusion statement

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2014 Old Version



2021 New Version



Subcutaneous Insulin Injection Sites


THANK
YOU