

# American Diabetes Association 81st Scientific Sessions (ADA)

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Visual Poster

## **EDUCATION ON CORRECT INJECTION PRACTICE: THE MISSING LINK BETWEEN TECHNOLOGY ADVANCES AND OPTIMAL DIABETES MANAGEMENT**

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## BACKGROUND

The therapeutic availability of insulin in 1921 and its first use in humans in 1922 changed the course of type 1 diabetes from a death sentence into a manageable condition, making it one of the most outstanding achievements of medical sciences to this day. In the centenary of insulin’s discovery, however, two fundamental problems still stand: (a) barriers to access to insulin, which are due to: (i) affordability and availability, especially in low-income settings, and (ii) geopolitical situations and national healthcare organizations; and (b) misuse of insulin due to incorrect injection techniques, which have severe economic and health consequences.

According to the IDF Atlas 2019 a staggering 463 million adults (20-79 years) worldwide live with diabetes; a further 1.1 million children and adolescents (aged under 20) live with type 1 diabetes; 232 million people are estimated to be undiagnosed. By 2030 it is expected that some 578 million adults will live with diabetes and 700 million by 2045.

A large proportion of people with diabetes (PwD) inject insulin in an incorrect manner [1], with considerable and needless health – mostly cardiovascular – and economic consequences.

## AIMS

One hundred years after the discovery of insulin, correct injection techniques should be practiced by PwD supported by trained healthcare personnel (HCP) who follow periodic refresher courses. The aim is the reduction of insulin misuse, with immediate positive consequences on the health of PwD in terms of avoidance of skin lesions, mostly lipohypertrophy (LH) and reduced health costs.

## METHOD

Correct injection techniques have been known since the discovery of insulin. Despite practical injection guidelines and recommendations being available for about a decade [2,3], the rate of LHs – like those shown in Fig.1 – still averages 38% (range 2-70%) worldwide, indicating a lack of aptitude / interest / organization for practical and fully effective educational efforts [4-6].

## RESULTS

The authors recently provided evidence that continuous reinforcement of the initial educational training addresses the need to keep alive the memory of the skills and abilities underlying appropriate insulin injection in PwD and HCP [7-8]. How long the initial knowledge lasts after initial education is still to be determined. From a practical perspective, the diabetes team should have the competence and time needed to instruct people with diabetes periodically.



Fig. 1 – Clear evidence of LH nodules (as shown by the arrows) at the arms (panels a and b) , upper-lateral thigh (panel c), lower-lateral thighs (panel d) and forearm (fully improper area, panel e).

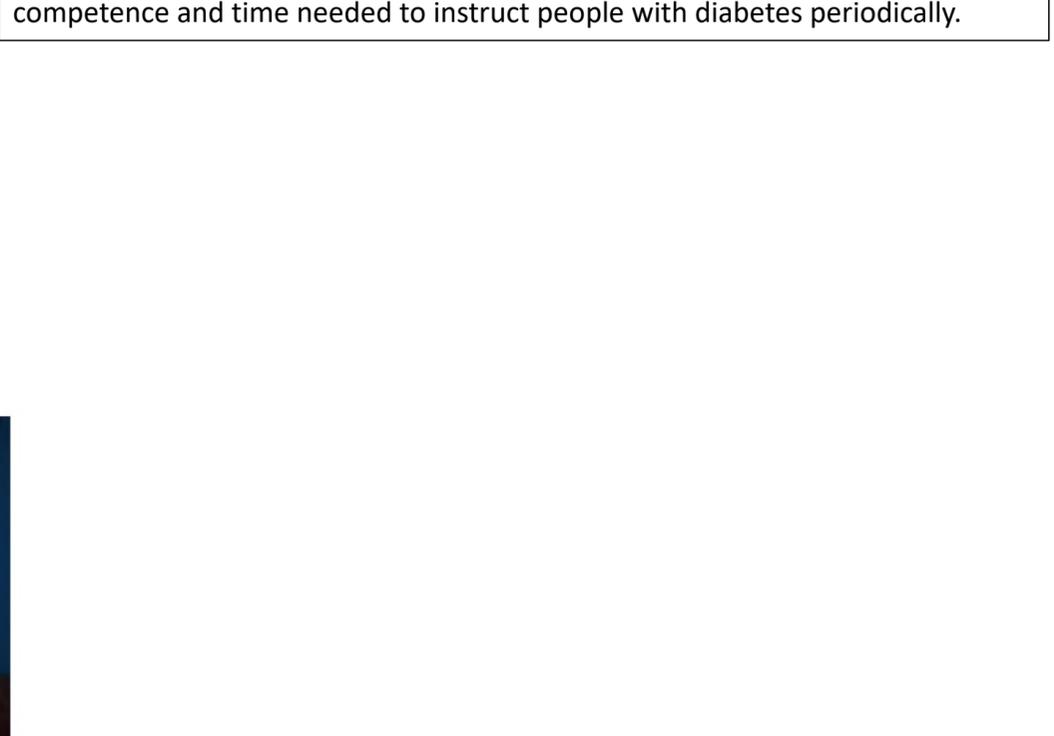


Fig. 2 – Changes in injection habits, hypoglycemic event rate and larger LH diameter during the 6-month follow-up of the control group (CG) and intervention group (IG).

## DISCUSSION and CONCLUSIONS

We have been struggling with injection-induced skin lesions for one hundred years, ever since insulin production, as LHs was described for the first time in 1922. It is high time to take action to improve well-being in PwD all over the world by encouraging diabetes-related volunteer associations, scientific societies, governments, and insulin manufacturers to promote specific information and training campaigns on correct injection techniques and engage health care teams and PwD in a fully effective fight against injection technique errors.

## REFERENCES

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