

## Glucopuncture: A novel injection technique for medically underserved populations

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### Abstract

Some physicians are working in challenging circumstances, especially in primary health care. These doctors practice in medically underserved populations in low-income and middle-income countries. For such colleagues, a new educational project is available. The goal of this medical project is to introduce these physicians to Glucopuncture, a novel injection technique to treat nonrheumatic musculoskeletal pain. It is hypothesized that this technique is safe, easy to learn and inexpensive.

**Keywords:** Glucopuncture; Pain Modulation; Educational Project; Medically Underserved Populations

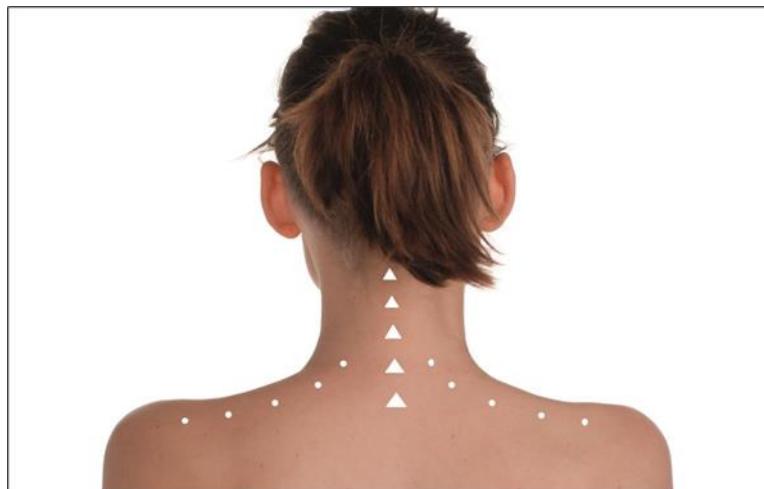
### 1. Introduction

Some medical professionals are working in challenging circumstances, especially in primary health care [1]. These family physicians are treating patients in medically underserved populations (MUPs), often in low-income and middle-income countries (LMICs). Some of these medics practice in remote areas where modern technology is not available, others work in cities where specialized diagnostic tools and hi-tech treatments are too expensive for low-income patients. On top of that, LMICs also have low levels of health insurance coverage [2,3]. As a result, it is obvious that medical guidelines developed for high-income settings need to be adapted to create a realistic medical care program for MUPs in LMICs. Such projects should take into account factors such as costs, safety and feasibility [4].

### 2. Glucopuncture

Glucopuncture (GP) is a novel injection technique which applies shallow injections of isotonic sugar water (ISW) such as glucose 5% or dextrose 5% into specific zones in the body [5, 6]. The injections are mainly given into dermis, muscles and ligaments [7, 8]. In contrast to prolotherapy, *hypertonic* solutions such as glucose or dextrose 10-20% are not applied because these irritants can cause cell destruction [9, 10, 11]. The goal of GP is pain modulation and tissue repair [12, 13]. GP is mainly used for the management of musculoskeletal pain (Fig 1, Fig 2). It can also be used for acute sports injuries [8], mild neuropathic pain [14] and early stages of Dupuytren's in men (<https://youtu.be/fwNVY5KfUXg>).

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**Figure 1** Intramuscular Injections (Left and Right) and Injections into the Nuchal Ligament (Midline) for Whiplash



**Figure 2** Intramuscular Injections (Left and Right) for Low Back Pain

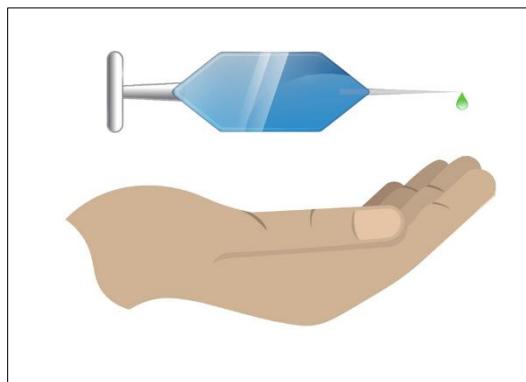
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### 3. Glucopuncture for Medically Underserved Populations

GP is especially interesting for physicians working in remote areas in LMICs because isotonic sugar water (ISW) is available worldwide, safe to use and inexpensive. The injection techniques are easy to learn and safe to apply [15]. Diagnosis and treatment are mainly based on clinical examination. Usually, multiple injections are applied each session. Ultrasound guidance is not required, which is interesting in regions with low economic development where modern radiological facilities are absent. The amount of sugar injected each session is so low that it can even be applied for patients with diabetes. On average, the injections are repeated every two weeks. The preliminary clinical results of GP in pain management are promising but it is obvious that large clinical trials are required to assess the efficacy of these ISW injections. It is expected that the application of GP in MUPs may lower intake of pain killers, anti-inflammatories and opioids. This is especially interesting in resource-poor settings where counterfeit drugs are common [16, 17]. Glucopuncture can also be an option in LMICs with temporary drug shortage [18].

#### 4. Educational Project “Sweet Solution for Medics”

The first goal of this international medical care project (Fig.3) is to learn local doctors how to treat their patients with musculoskeletal disorders using this new technique [19]. They can get the e-book for free on the GP website [20]. The second goal is to invite these doctors to train their colleagues how exactly to apply ISW injections as well. They will receive a PowerPoint presentation for free if they desire to become Glucopuncture teachers. The goal of this medical educational project is to make physicians worldwide aware about the interesting benefit-cost ratio of Glucopuncture. Unfortunately, there are no clinical studies (yet) and the exact mechanism of action [5] is not fully understood (yet). It is expected that this situation may change in the near future.



**Figure 3** Logo of the Medical Educational Project “Sweet Solution for Medics”

#### 5. Conclusion

Some primary health care providers are practicing in medically underserved areas in low-income and middle-income countries. Those colleagues often work in remote areas where modern technology is not available or too expensive for low-income patients. For such colleagues, a new educational project is available. The goal of this project is to introduce family physicians into Glucopuncture, a novel injection technique to treat nonrheumatic musculoskeletal pain with multiple shallow injections. As this technique does not require ultrasound, X-rays or MRI, it can be practiced in ambulatory care. It is hypothesized that Glucopuncture can become a safe, effective and inexpensive tool for medically underserved populations.

#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

The author declares that there are no conflicts of interest or source of funding.

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### Author's Short Biography



**Jan Kersschot** is a medical doctor practicing nonsteroidal injections for over 30 years. He was trained in neuraltherapy, mesotherapy and prolotherapy, and has given lectures and workshops about nonsteroidal injections to his colleagues in more than 20 countries. He has been using isotonic sugar water injections in an ambulatory private practice in Belgium for over ten years for the treatment of sports injuries and musculoskeletal pain.