Vibration used during injections
A method to decrease patient pain.

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Have you every received any sort of injection?

- Injections hurt
- Some injections more than others
- Some patients tolerate injections more than others
- My orthopedic surgeon has injected my knees
- Those injections hurt. I grit my teeth and take it.
• About two years ago I watched a colleague’s video on his web site showing his technique for an injection

• He had this funny ball thing held to his patients wrist

• I called him up. What was that silver thing you were using?

• “Oh I got it from my supply house”
Oh I got it from my supply house
• He said it vibrates and helps with the pain of injection. The dentists are into this
• Really!
• So I looked it up
• Sure enough there are articles in
  the Dental, Plastic surgery, Pain management, Anesthesia literature
• I found zero in the Orthopedic literature on the pain of injections themselves.
• There are companies selling devices for this purpose

• This device is called a Buzzy and is marketed to dentists.
• Here is another commercial device being sold by plastic surgeon
I showed the video to my junior associate

So I shared my hand surgery friend’s video with my junior associate of the time. She screamed “That’s a Vibrator” She started to laugh at me and has continued to do so.
• My literature research showed very few controlled studies demonstrating the validity of vibration as a pain control method.

• I found one study in the Japanese dental literature. They looked at 10 patients with vibration and 10 without and found no difference.
I did not think 10 patients made for a very large population sample

- I thought it would be an easily study to do in the office.
- If 10 patients per population was too small
- Would 100 be more representative?
• So before I launched my study
  – I asked my junior associate what she thought about the idea. She continued to laugh at me.
  – I asked my senior associate about doing a study. He said “do what you want, you always do”
  – So I did a study
I checked out various forms of vibration

One dentist used a swab mounted on a battery powered razor handled.

I tried his method.

I was not impressed with the buzz

My powered toothbrush was on the same sink. It made a nice buzz

So I used a tooth brush as a source of vibration
I purchased a new tooth brush at the corner drug store for $4.99 on sale. I did not want to spend too much money on this project.
I used the toothbrush and Ethylene Chloride spray
• We studied 200 consecutive injections in the hand and upper extremity
• Every patient was treated the same
  gloves, injection, ethylene chloride spray
• And every other patient had the vibrating toothbrush
• Every patient completed a Visual Analogy Pain Score.
Happy face to Crying Face

Almost every patient understand this scale.
• We did not tell anyone why we having them fill out the Visual pain score sheet

• We never cheated on the every other patient randomization schedule
After two hundred patients

• At the end of the study
• I compared the two groups
• Each group was remarkably similar
  • age, gender, types of injections
• I calculated the mean pain score for both groups
Surprise

- The vibration group mean score was 25% lower than the control group
A Student T test was run

• My results are valid to the 95 percentile.
• I calculate my cost of use of the toothbrush
• New covering glove
• battery
• the cost of the toothbrush amortized per case

• My cost is about 3 cents per patient
• Since vibration is a cheap technique
• and it is an easily thing to a add to my injection technique
• and since it seems to help the pain of the “shot”
• and since my patients seem to appreciate my concern for their pain
• I continue to use the tooth brush
• There is little down side

• Beside not hurting patients is good for business.
Recently the Buzzy company appeared on the Shark Tank

• My patients told me about the recent episode.
• The Sharks loved the idea.
• The Sharks wanted to buy in.
• They were turned down by the Buzzy owner.
• Do you think the Sharks will buy half of my tooth brush for $2.50?
Next time I get my knees injected
I am going to hand my orthopedic buddy a powered toothbrush.
I can afford the $4.99