

## **A brief introduction to Fu's subcutaneous needling**

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### **summary**

Fu's subcutaneous needling (FSN), a therapeutic approach that originated from acupuncture and which has been developed since 1996, mainly acts safely within subcutaneous layers around the afflicted spot using a special needle, similar to an i.v. catheter. For the majority of focal painful or tender problems, FSN could provide significant and immediate relief, and sometimes could work faster than anesthesia.

This paper highlights its indications, tools and processes, details of the method, and how to test the effect, in order to provide a brief but valuable resource, which is quite different from the western style, to clinicians and researchers in the field of pain management.

*Key words:* Pain treatment; acupuncture; Fu's subcutaneous needling.

### **introduction**

As a complement to conventional treatment, acupuncture has been accepted for pain relief in most countries and is commonly used in general practice and pain clinics.<sup>1</sup> Unfortunately, the effectiveness of acupuncture for pain relief remains unresolved. Several systemic reviews<sup>2–5</sup> have been published examining the efficacy of acupuncture for the relief of chronic pain, all with inconclusive results. In this paper we describe an alternative approach of pain relief compared to acupuncture.

Fu's subcutaneous needling (FSN) is also named floating acupuncture, Fu's acupuncture<sup>6</sup> and floating needling<sup>7</sup>. Though FSN came about from our knowledge of some acupuncture phenomena and special approaches,<sup>6</sup> it is not based on the theory of traditional Chinese medicine<sup>8</sup>.

Due to its amazing effect on the management of pain, FSN has been gradually widely adopted in China since 1996. The purpose of this brief article is to introduce FSN to practitioners and scientists outside China.

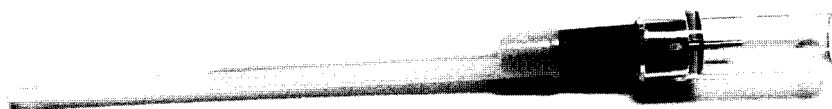
### **indications**

The problems not amenable to treatment with FSN are the following: (1) some diffuse pains, such as most headaches; (2) problems of pain, tenderness, and soreness, with numbness; (3) problems accompanied with swelling or fever; (4) diseases treated by corticosteroids, cytotoxic, or immunosuppressive drugs administered in the past few weeks were also excluded.

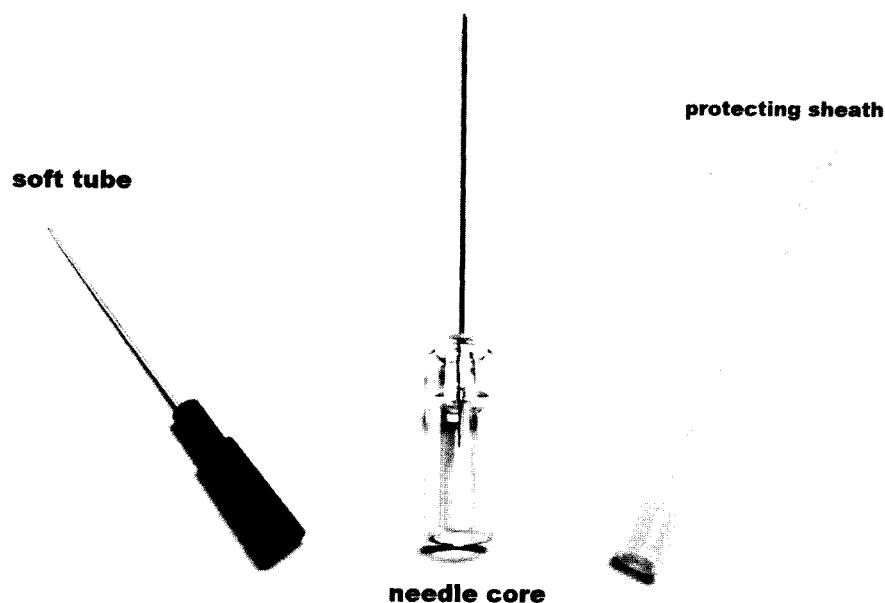
The main examples of indications for successful treatment by FSN are as follows: upper extremity pain; chronic back pain; fibromyalgia; osteoarthritis; acute rheumatoid arthritis; chronic pelvic pain; post-herpetic pain; peripheral neuropathy; complex regional pain syndrome.

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**Figure 1.** An overview of the FSN needle.



**Figure 2.** The three parts of the FSN needle.

Pain problems due to infection, such as acute appendicitis and acute pancreatitis, abdominal angina, or splenic pain, are not indications for FSN.

#### **the tool**

An acupuncture needle was used until 1997.<sup>6</sup> In order to broaden its range of indications, and to improve its immediate and long-term effect, we developed a new kind of needle, FSN needle (Fig. 1), which is similar to an i.v. catheter.

The special FSN needle consists of 3 parts (Fig. 2): needle core, soft tube and protecting sheath. The needle core, 31 mm length and 1.0 mm caliber, is made of stainless steel. It facilitates the FSN needle with enough rigidity to go through the skin quickly, to go forwards along superficial fascia and sway from side to side smoothly. It is packaged by a soft tube (Fig. 3). The tip of the needle is beveled (Fig. 4).

The tube is soft enough for long retention without damage. All FSN needles are for single use only.

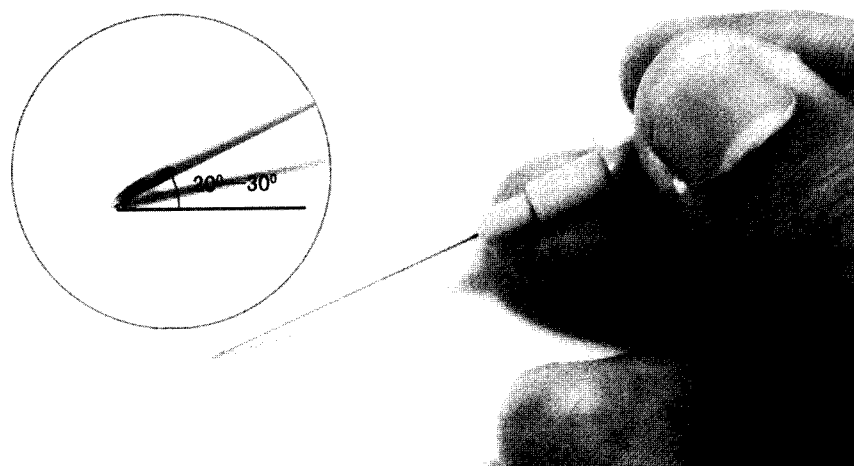
#### **the method**

##### *Mark the area of pain or tenderness*

Under most conditions, it is easy to follow what the patient is saying and to mark the location of painful or tender zones. However, sometimes it is hard for the patients, especially for older patients, to be sure of the exact location of pain. For example, patients with gonarthrosis often tell you that they have



**Figure 3.** The position of the needle core and of the soft tube.



**Figure 4.** The position of the FSN needle before insertion.

a painful knee, cannot walk, or cannot go up or down stairs freely, but cannot tell you the painful spot(s) exactly. Doctors however always have to search for tender spots by palpation. Palpation must be done gently, as excessive pressure will be painful in itself and may irritate sensitive tissues.<sup>9</sup> If the painful area is not precisely located, FSN is not indicated.

#### *Insertion point(s)*

Locate the insertion point(s) according to the following principles.

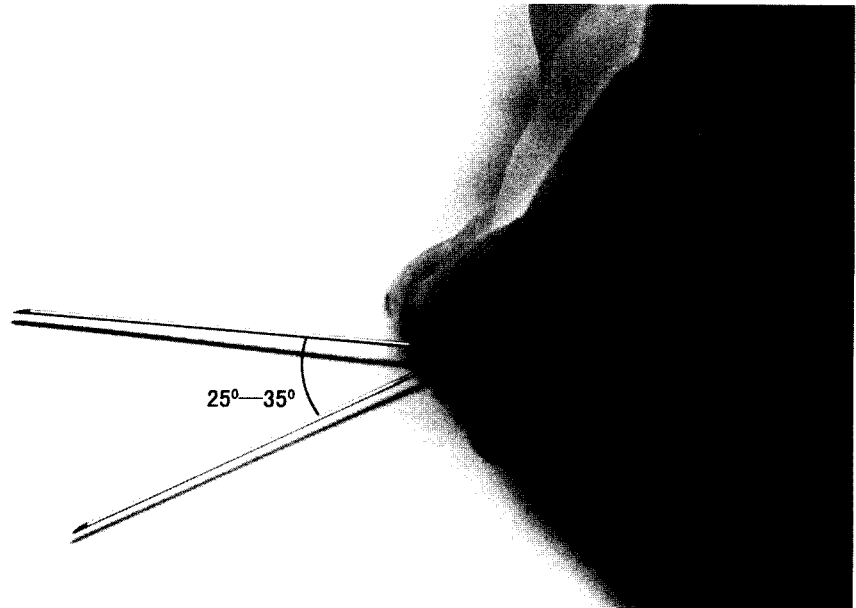
- (i) insertion point can be anywhere on the skin surrounding the painful spot.
- (ii) the distance between insertion point and pain spot is not fixed. Pay attention that the FSN needle does not reach the pain area, no matter how short the distance.
- (iii) mark the located insertion point. For large-area pain or for an area where several painful spots are located, the distance should be longer. For example, to relieve primary dysmenorrhea, where the painful area is often large, the insertion points could be selected in the middle of inner side of low extremities.
- (iv) there should be no scar, node, protuberance (e.g. nose), hollow (e.g. mouth) on the local surface between insertion point and painful spot.

#### *Disinfection*

Disinfectants must cover the surface of insertion point and practitioners' fingers.

#### *Insertion and movement of FSN needle*

Before insertion, be sure that the needle is directed towards the center of the painful spot. The angle between the needle and skin is about 20°–30° (Fig. 4).



**Figure 5.** FSN needle moves from side to side.

Step 1. Quickly push the needle through the skin. Push the needle tip not too deep, and stop when the needle tip just goes into the muscle layer.

Step 2. Lift the needle a little to reach the subcutaneous layer.

Step 3. Push forward the needle parallel to the skin surface until the soft tube is under the skin.

Step 4. Move smoothly and rhythmically the needle from one side to another horizontally at least for 2 min (Fig. 5).

During steps 3 and 4, patients should not feel numbness or aching, though some sensations, called *de qi*, are sometimes felt during acupuncture.<sup>10</sup>

#### *Securing of the needle*

After finishing the movement, pull the needle core out, and then fix the needle nest with adhesives to retain the soft tube under the skin. With the soft tube retained under the skin, the patient can move freely and go home.

#### *Retention and pulling soft tube out*

The long time of retention of the soft tube acts like the movement from side to side in Step 4, although the range and the intensity are much less.

The retention time depends on the history of the diseases. For diseases with a short history, 2 h of retention are enough; for chronic pain, 24 h of retention is better.

During the retention, the patient should: (i) not wet the local area; (ii) not sweat too much; (iii) rest more than usual.

When the retention time is over, slowly pull the soft tube out. As soon as the soft tube is out, you should press the insertion point with a dry disinfected cotton ball for at least 1 min.

#### **the experience**

Except that there may be sometimes congestion under the skin or fainting while manipulating due to dread of the needle, FSN is very safe without any adverse or side effects.<sup>5</sup>

When the patient suffers from subcutaneous swelling, due for instance to prolonged treatment with glucocorticoids, the effect of FSN is not good.

While you are pushing the needle under the skin and moving the needle from side to side horizontally, the patient should not feel soreness, numbness, or pain, because the subcutaneous layers are poorly innervated. If the patient feels sore or numb, it means that the needle has been placed too superficially or too deep.

FSN induces an immediate effect on the majority of painful problems if the technique is done correctly. During the movement from side to side, pain goes away or at least decreases.

After this movement and before pulling the needle core out, make another examination of tender spots. If pain relief is not satisfactory, change the insertion points for another treatment.

If there is no immediate relief of pain, this approach must be abandoned.

If FSN fails to provide improvement, other non-medical approaches, such as acupuncture, massage, or chiropractic seldom work.

In general, if FSN works, results are sustained. For acute painful problems, sometimes one FSN treatment is enough. However, for most diseases, several treatments (one treatment every two days) are more appropriate. For problems of weight-bearing joints, the relief is better if combined with rest of at least two weeks.

## discussion

The observation that the tip of the FSN needle must not reach the painful spots is empirical. On the contrary, traditional acupuncture claims that treating the *ah shi* points, the other name for the painful spots, is very effective in pain management;<sup>8</sup> from the theory of *ah shi* points dry needling has been further developed for the treatment of chronic pain.<sup>11,12</sup> In spite of a lack of scientific studies, thousands of successful treatments in China are testimony to its effectiveness. Interestingly, a study on dry needling and acupuncture at distant points also supported our point of view.<sup>13</sup> Despite its long history and widespread use, acupuncture has failed to demonstrate its clinical effectiveness convincingly.<sup>14</sup>

To our knowledge, studies on the pathophysiology of FSN should concentrate on some features of the subcutaneous layer. Subcutaneous layer contains fat (adipose tissue) and connective tissue.<sup>15,16</sup> The homeostasis of connective tissue can be regulated by mechanical forces.<sup>17-20</sup> FSN probably acts on these mechanical forces.

The International Association for the Study of Pain states that pain is 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'.<sup>21</sup> So, pain management relates not only to the biological mechanisms but also to psychological aspects. Does the FSN effect derive from psychological influence of patients and/or doctors? Our answer is negative as: (1) thousands of successful practices come not only from our clinic but also from hundreds of doctors across China; (2) the patient often improves step by step with other treatments while with FSN movement the improvement is more immediate.

## conclusions

Our hope is to perform clinical studies in collaboration with doctors and scientists outside China. If you are interested in the technique but have no FSN needles, you can use an i.v. catheter, though such a catheter may cause bleeding.

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