

# The role of skin stem cell in cupping therapy

## Abstract

The cupping therapy (Hijama) is one of the alternative ways of treatment. The Hijama started about 7000 years ago. The benefits of Hijama were reported all over the world. Many aspects use the line of Hijama as a line of alternative treatment. There are many types of Hijama. The dry cupping is used in different world centers. The wet cupping is also used. The result of both wet and dry cupping is almost the same. The site, at which both are acted on, is the skin. The secret is in how modulation of skin is interacting with cupping pressure. During the procedure of Hijama, different suction pressure is used. There are three suction pressure limits used. The light, moderate and strong suction pressure. The skin is rich in different types of stem cells. Almost all types of stem cells are interacting and different ways of reaction happen. The net result is improvement in course and benefit of cupping therapy. There are many types of stem cells. They are named after the location at which the niche is present. Hair follicle stem cells (HFSCs), melanocyte stem cells (MeSCs), interfollicular epidermis stem cells (IFSCs), and dermal stem cells (DSCs). All are known as skin stem cells (SSCs). The reaction of stem cells to pressure is different from one type of stem cell to others. This reaction is responsible for the effect of Hijama. The skin reaction is either secretory or non-secretory substances that are released in the skin. Some act locally and others have remote action in the blood.

**Keywords:** stem cells, hijama, suction pressure, cupping therapy and alternative medicine.

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## Introduction

The skin stem cells are the important part in the cupping therapy. There are many types of skin stem cells. They are named after the location at which the niche presents. The reaction of stem cells to pressure is different from one type of stem cell to others. There are secretory and non-secretory substances released in the skin. During cupping therapy the pressure on the stem cells results in stimulation and degradation of the mast cells, that is one of the types of stem cells. The mechanism by which the pain is decreased or relieved is different. There are many types of substances that are excreted in relation to physical stimulation. The pressure on the skin created by suctioning during the first step of cupping therapy is the leader for the all process for decreasing the pain and improving in the symptom. Therefore, evaluation of the skin thickness regarding dermis and epidermis that is involved in the process of suctioning is mandatory. The relation between the thickness of the skin and the pressure applied must be studied.

The question is, the light or strong pressure related cupping therapy is chosen. More studies have to be done to answer this question. The thickness of the skin that is sucked inside the cup is the decision making for the effectiveness in relieving pain. As we expect that more pressure and more sucked skin inside the cup, the more skin stem cells involved in this process. But, more research regarding this point must be done. Because may be the stronger pressure cupping therapy applied, more occlusion to the pores and the secretory substances happen.

## Discussion

There are many types of stem cells. They are named after the location at which the niche is present. Hair follicle stem cells (HFSCs), melanocyte stem cells (MeSCs), interfollicular epidermis

stem cells (IFSCs), and dermal stem cells (DSCs). All are known as skin stem cells (SSCs). During cupping therapy the pressure on the stem cells results in stimulation and degranulation of the mast cells, that is one of the types of stem cells. The end result is release of adenosine triphosphate (ATP). The end result is release of adenosine triphosphate (ATP). The release of ATP is related to mast cell physical stimulation.<sup>1</sup> ATP release lead to simulation P2X3 and P2X2/3 receptors in peripheral nerve endings, which may account for analgesia,<sup>2</sup> this explain how effective the cupping therapy in relief of pain.<sup>3</sup>

The other type of stem cells is keratinocyte that is found in large portions in epidermis. The skin protection is done by this layer of keratinocyte as integrity is preserved and barrier action is done. During cupping the pressure time will effect on keratinocytes and structural neogenesis happened.<sup>4,5</sup> The load of mechanical pressure is tolerated by intercellular junctions to form a force-coupling network.<sup>6</sup> Compared to other cell types such as fibroblasts, keratinocytes boast high stiffness reflected by a 100,000-fold difference in Young's modulus.<sup>7</sup> The response of keratinocyte for pressure is different and many ion changes happen that modulate the effeteness of hijama regarding excretion of metabolite and toxic product, for example calcium flux is modulated by stimulation of keratinocyte and the best result of  $\gamma$ -aminobutyric acid type B (GABAB) receptors is started and the net result is relief of pain. This explains how the pain is relieved after cupping therapy.

## Method

The set for Hijama (Figure 1) consists of cups and vacuum for suctioning used on the valve of the cups by which pressure is induced, and the pressure that stimulates the stem cells is done, then all processes for activation of different types of stem cells are done.



**Figure 1** Hijama set contains cups of different size and vacuum by which pressure on valves of cups done.

There are different types for cupping therapy. Either dry, wet or moving cupping.

The dry cupping means no scarification, no blood.

The wet cupping means scarification is done and blood is seen in the cups.

Moving cupping: Apply an oil or lotion to reduce the resistance of dragging then apply the cup to the desired area, Move the cup along the area. Continue on other areas if desired.

## Conclusion

The skin stem cells have a great role in the decision of pain management. More studies about the relation of the skin thickness and the secretion of secretory substances from stem cells should be done. The different types of excretory substance are affected by the type of pressure applied. What we expect is more suction results in

more and more releasing of secretory substances from the stem cells. But, maybe the revision is true. Because, the more pressure the more the closure of the pore and cupping may be not effective.

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## Conflicts of interest

The author declares there is no conflict of interest.

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