



## Evaluation of Effect of Jalandhara Bandha Yoga in Tooth Extraction

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### Abstract:

**Background:** Painless tooth extraction by Jalandharabandha yoga (without administration of local anaesthesia) is practised widely in different parts of India by many Ayurvedic Dentists & Traditional Vaidyas. This yogic technique of teeth extraction is very brisk, less traumatic, very minimal invasive & economical. Though this yogic technique of tooth extraction is popularly accepted among patients its proper scientific evaluation is not done so far. So current study is taken up to evaluate the effect of Jalandharabandha yoga in tooth extraction.

**Aims & Objectives:** To evaluate the pain threshold & anaesthetic effect of jalandharabandha yoga in tooth extraction

**Materials and Methods:** A total of 60 patients were selected for the study who fulfilled the inclusion criteria and consented for the study. Among 60 patients, 26 patients on maxillary region & 34 patients on mandibular region were assessed for pain threshold & anaesthetic effect at rest (without Jalandhara Bandha Yoga) & during Jalandhara Bandha Yoga, before the extraction of teeth.

**Observation and Results:** The result shows statistically significant difference in pain threshold between alveolar process of maxilla, intermaxillary suture, ramus of mandible, body of mandible before and during Jalandharabandha with P value <0.001. Were as pain threshold in body of maxilla, alveolar process of mandible was statistically insignificant with P value 0.144 & 0.292 respectively. Though these two values are statistically insignificant the mean value which was 1.65 & 1.75 of body of maxilla & alveolar process of mandible at rest has increased to 1.8 & 1.89 respectively during Jalandhara Bandha. By looking at the mean ranks of anaesthetic effect it is inferred that the mean remains the same (as 0) before and during the process for lip numbness, soft tissue response and pulpal anaesthesia. Hence no difference found before and during the Jalandharabandha with respect to anaesthetic effect.

**Conclusions:** There was increase in the pain threshold of both Maxillary & Mandibular region during extraction of teeth by Jalandharabandha yoga. This helped patients to undergo tooth extractions successfully without anaesthesia by this yogic technique. However either there was lip numbness or soft tissue anesthesia or pulpal anesthesia during Jalandharabandha yoga in tooth extraction.

**Keywords:** Jalandharabandha yoga, pain threshold, anaesthetic effect, tooth extraction

### Introduction

In Sanskrit jal means throat, jalan means net, and dharan means stream or flow, **Bandha means to lock, to hold, or to tighten.** Thus in the most basic sense, Jalandhara Bandha can be considered the throat lock that

controls the flow of energy in the nerves and blood vessels of the neck. (It holds the fluid-Amruth flowing through the nadis)<sup>1</sup>. Jalandhara Bandha Yoga is not only used for Yogic practices but it is also used for extraction of teeth. Ayurveda DantaVaidyas (Ayurvedic Dentists) practices painless tooth extraction by Jalandhara Bandha Yoga (without anesthesia/injection) at different parts of India. This is the most popular widely practised traditional indigenous Yogic & Ayurvedic technique of extraction of teeth. With this technique both maxillary, mandibular anterior, premolars, molars, wisdom & even deciduous or milk teeth can be extracted successfully without any complication. Though this technique is widely used & appreciated by people its scientific evaluation regarding its mode of action was not yet ascertained. So we have taken up the scientific study to evaluate the effect of jalandharabandha yoga in tooth extraction.

#### **Aims & objectives of the study:**

1. To evaluate the pain threshold of jalandharabandha yoga in tooth extraction
2. To evaluate the anaesthetic effect of jalandharabandha yoga in tooth extraction

#### **Materials and Methods**

##### **Source of Data**

Patient who has come for the extraction of teeth by Jalandharabandha yoga fulfilling the inclusion criteria approaching the OPD & IPD of Post Graduate Department of Shalya & Shalakhya Tantra of Government Ayurveda Medical College Hospital & OPD & IPD of Department of Shalya & Shalakhya Tantra of Sri Sri College of Ayurvedic Science & Research Hospital, Bangalore were selected for the study.

##### **Inclusion and Exclusion Criteria**

After taking a detailed medical history and initial clinical examination, systemically healthy individuals with following criteria were selected for the present study.

##### **Inclusion Criteria:**

- Teeth severely damaged by caries, retained roots
- Severe gum disease which may affect the supporting tissues and bone structures of teeth. (i.e. Teeth severely damaged by periodontal disease)
- Teeth with peri-apical infections that can neither be preserved endodontically nor by surgery and have caused an extensive inflammation (e.g. of the maxillary sinus or the soft tissue) or a cyst
- Teeth damaged by trauma (multiple fractures, longitudinal fracture, extensive bony defect in the periodontal region)
- In case of crowding or impeded eruption, milk teeth and permanent teeth should be extracted for orthodontic reasons.
- Prosthetics; teeth detrimental to the fit or appearance for dentures.
- Patient who is physically fit to sit & perform Jalandhara Bandha posture & who can cooperate for extraction of teeth by this yogic technique.

##### **Exclusion Criteria:**

- Teeth associated with severe purulent infection
- In bleeding disorders like Hemophilia, Scurvy etc.
- Tooth associated with any tumor.
- Patients with CT, BT, Hb% below the normal value is excluded
- Patients with uncontrolled diabetes mellitus are excluded
- In cardiac diseases like hypertension, congestive cardiac failure, myocardial infarction and coronary artery disease
- Medically compromised patient; patients with debilitating disease like TB etc,

- Fever of unexplained origin
- Extraction should be avoided in first and third trimester of pregnancy
- Teeth involved in arterio-venous malformations
- Patient who cannot sit & perform Jalandhara Bandha posture
- And patient who is not willing to undergo extraction by this technique

### **Study design**

A total of 60 patients were selected for the study who fulfilled the inclusion criteria and consented for the study. Among 60 patients, 26 patients on maxillary region & 34 patients on mandibular region were assessed for pain threshold & anaesthetic effect at rest (without Jalandhara Bandha Yoga) & during Jalandhara Bandha Yoga, before the extraction of teeth.

### **ASSESSMENT CRITERIA**

Assessment of the study was done before & during the procedure on the basis of following parameters.

#### **Parameters of Study:**

#### **Effect of Jalandharabandha on pain threshold**

Pain is a subjective response; an attempt is made to give it an objective view by using an Algometer, which is an instrument used for measuring a person's sensitivity to pain produced by pressure.

Algometric readings were taken before extraction of teeth (at rest) and while extraction of tooth by jalandharabandha yoga of the effected side on the following areas of either mandible or maxillary region.

The amount of pressure required to create pain is expressed as kg/cm<sup>2</sup>.

<b>Maxillary Region</b>	<b>Mandibular Region</b>
Body of the maxilla	Ramus of the mandible
Alveolar process of maxilla	Body of the mandible
Inter maxillary suture	Alveolar process of mandible

#### **Assessment of anesthetic effect while extraction of tooth by Jalandharabandha yoga**

##### **i) Lip Numbness**

- No lip numbness - 0
- Mild Lip numbness - 1
- Moderate lip numbness - 2
- Complete/Total lip numbness - 3

##### **ii) Soft tissue anesthesia**

- No mucosal response to sharp instrument - 0
- Mild mucosal response to sharp instrument - 1
- Moderate mucosal response to sharp instrument - 2
- Severe mucosal response to sharp instrument - 3

##### **iii) Pulpal anesthesia**

- No pulpal anesthesia - 0
- Mild pulpal anesthesia - 1
- Moderate pulpal anesthesia - 2
- Complete/Total pulpal anesthesia - 3

## Procedure of Tooth Extraction by Jalandhara Bandha Yoga

### 1. Poorva Karma ( Pre-Operative Procedure)

Patient is educated priorly about the procedure of the yogic teeth extraction & he/she should be prepared both mentally & physically. While extraction special care is taken, if the patient is krisha(lean), durbala(weak) or Vriddha(aged)<sup>2</sup>.

### 2. Pradhana Karma (Operative Procedure)<sup>3</sup>

Patient is made to sit in sukhasana or padmasana on wooden plank of 2-3'' height. Patient should be made calm & relaxed & he/she is advised to concentrate on Vishuddha Chakra. Then patient is asked to hold his/her both knees firmly with his/her palm & fingers. A cloth is put overhead then head is bend forwards towards chest, so that the chin gets locked to the supra sternal notch or Jugular notch. While extraction the doctor will stand behind the patient & puts pressure over the SushumnaNadi (Spinal Cord) with left knee & also pressure is applied over the semilunar ganglion & trigeminal nerve with left hand. Then the Patients head is slightly moved up & down for 2-3 times, then the head is lifted & tooth is extracted by using SimhaMukhaYantra (Lion Forceps) or with any other suitable SandhamshaYantra's (Extraction Forceps).

Before extraction, when patient is fully on Jalandhara Bandha posture Algometric readings are taken on the following anatomical areas

For Maxillary Region it is taken on

- i) Body of the maxilla
- ii) Alveolar process of maxilla
- iii) Inter maxillary suture

For Mandibular Region it is taken on

- i) Ramus of the mandible
- ii) Body of the mandible
- iii) Alveolar process of mandible

Similarly before extraction, when patient is fully on Jalandhara Bandha posture lip numbness, soft tissue anesthesia - mucosal response to sharp instrument& pulpal anesthesia by electric pulp tester are assessed.

### 3. Paschath Karma (Post-Operative Procedure)

Post extraction Patient is given vranaropanagandoosha (gargling) with gairika, spatika & majupala yoga & pressure dressing is given with cotton.

## Data Analysis

All the data was analyzed using the SPSS version 20.0 software. Inter-group and intra-group analysis was done by paired & unpaired Student t-test. A p-value  $\leq 0.05$  was considered to be statistically significant. Wilcoxon test was applied to assess the anaesthetic effect before and during the process for lip numbness, soft tissue response, and pulpal anaesthesia.

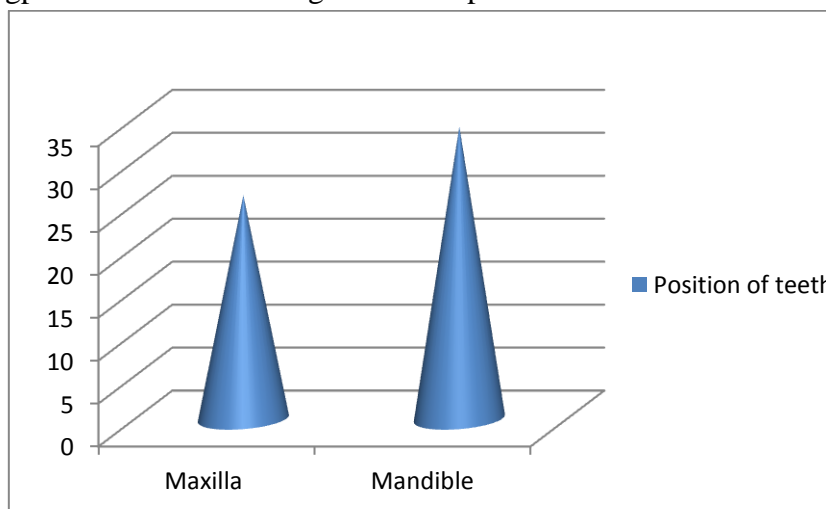
## Results

A total of 60 patients were selected for the study who fulfilled the inclusion criteria and consented for the study. Among 60 patients, 26 patients on maxillary region & 34 patients on mandibular region were assessed for pain threshold & anaesthetic effect at rest (without Jalandhara Bandha Yoga) & during Jalandhara Bandha Yoga, before the extraction of teeth.

**Table No.1: Showing position of teeth among 60 treated patients**

	Maxilla	%	Mandible	%
Patients	26	43.33%	34	56.66%

**Graph No.1: Showing position of teeth among 60 treated patients**



**Paired t- test was applied to ascertain the difference between before and during the process in the Maxillary region.**

- The mean pain threshold scores were  $-1.65(\pm 0.76)$  and  $-1.8 (\pm 0.16)$  in the body of the maxilla before & during Jalandhara Bandha Yoga respectively.
- The mean pain threshold scores were  $-1.69(\pm 0.07)$  and  $-2.09 (\pm 0.08)$  in the alveolar process before & during Jalandhara Bandha Yoga respectively.
- The mean pain threshold scores were  $-1.51(\pm 0.07)$  and  $-1.74 (\pm 0.07)$  in the inter maxillary suture before & during Jalandhara Bandha Yoga respectively.

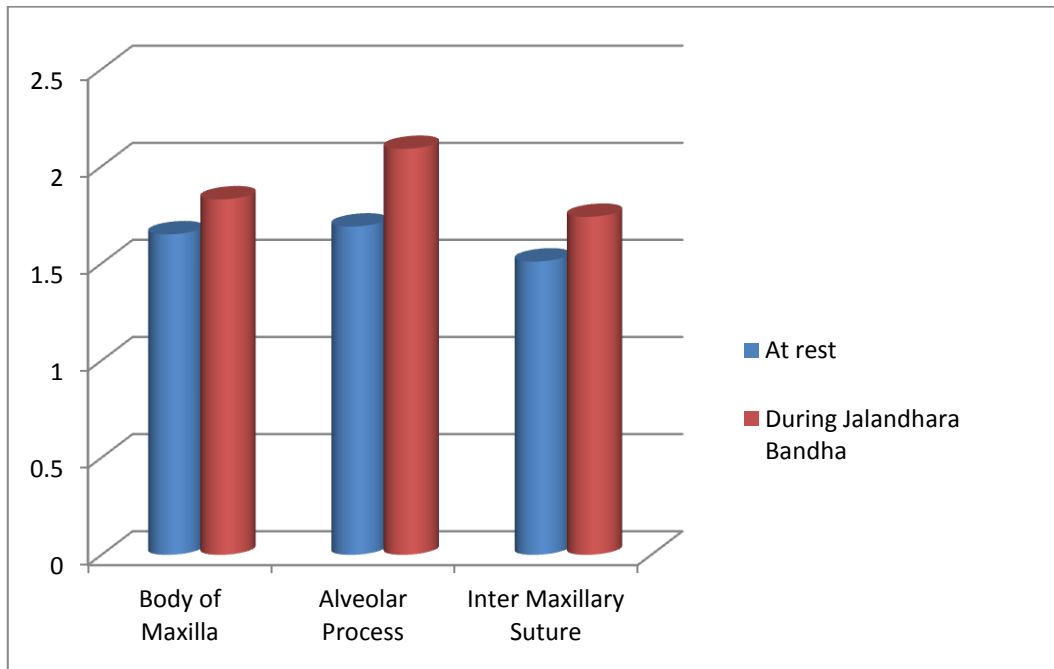
**Paired t-test was applied to ascertain between before and during JB of Mandibular region**

- The mean pain threshold scores were  $-1.94(\pm 0.06)$  and  $-2.67 (\pm 0.16)$  in the ramus of the mandible before & during Jalandhara Bandha Yoga respectively.
- The mean pain threshold scores were  $-2.05(\pm 0.08)$  and  $-2.39 (\pm 0.05)$  in the body of the mandible before & during Jalandhara Bandha Yoga respectively.
- The mean pain threshold scores were  $-1.75(\pm 0.04)$  and  $-1.89 (\pm 0.13)$  in the alveolar process of the mandible before & during Jalandhara Bandha Yoga respectively.

**Table No.2: Showing assessment of Pain Threshold in Maxillary Region**

Trial Group								
	Mean		N	SD		't' Value (Paired)	'P' Value	RE
	At Rest	During JB		At Rest	During JB			
Body of Maxilla	1.65	1.83	26	0.39	0.84	1.51	<0.144	NS
Alveolar Process	1.69	2.09	26	0.35	0.42	5.93	<0.001	HS
Inter Maxillary Suture	1.51	1.74	26	0.37	0.40	7.26	<0.001	HS

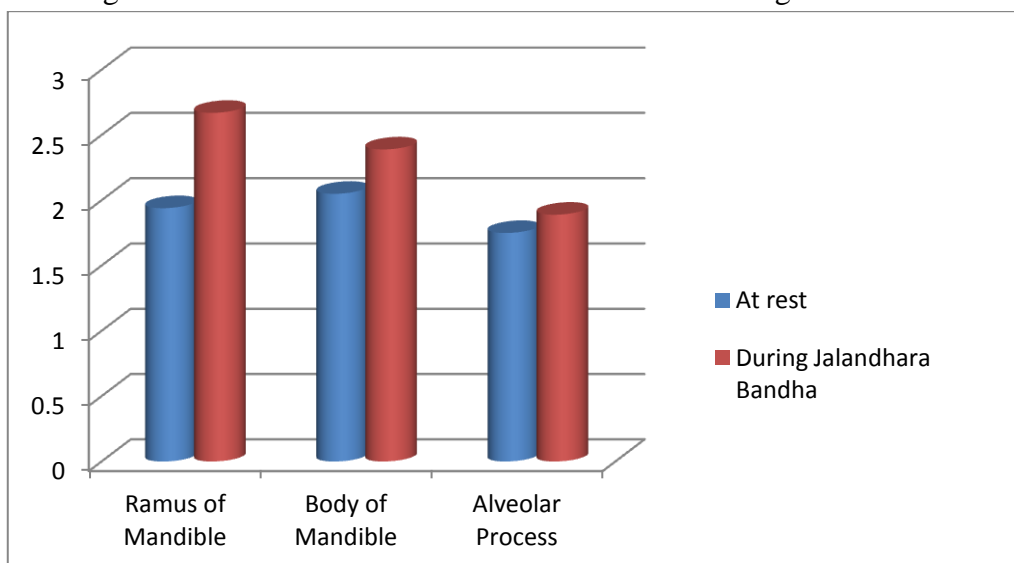
**Graph No.2:** Showing Assessment of Pain Threshold – In Maxillary Region



**Table No.3:** Showing assessment of Pain Threshold in Mandibular Region

Trial Group								
	Mean		N	SD		't' Value (Paired)	'P' Value	RE
	At Rest	During JB		At Rest	During JB			
Ramus of Mandible	1.94	2.67	34	0.36	0.99	1.51	<0.001	HS
Body of Mandible	2.05	2.39	34	0.51	0.33	5.93	<0.001	HS
Alveolar Process	1.75	1.89	34	0.24	0.78	7.26	<0.29	NS

**Graph No.3:** showing Assessment of Pain Threshold – In Mandibular Region





**Electric Pulp Tester Testing for Pulpal Anaesthesia in Jalandhara Bandha**



**Pressure Algometer**



**Assessment of Pain threshold at rest Assessment of pain threshold during Jalandhara Bandha  
During Jalandhara Bandha  
Wilcoxon Signed Ranks Test**

**Table No.4:** Showing assessment of Anaesthetic Effect

<b>Ranks<sup>a</sup></b>				
		N	Mean Rank	Sum of Ranks
lip numbness during JB - lip numbness before	Negative Ranks	0 <sup>b</sup>	.00	.00
	Positive Ranks	0 <sup>c</sup>	.00	.00
	Ties	60 <sup>d</sup>		
	Total	60		
soft tissue response during JB - soft tissue anaesthesia before	Negative Ranks	0 <sup>e</sup>	.00	.00
	Positive Ranks	0 <sup>f</sup>	.00	.00
	Ties	60 <sup>g</sup>		
	Total	60		
pulp anaesthesia during JB - pulp anaesthesia before	Negative Ranks	0 <sup>h</sup>	.00	.00
	Positive Ranks	0 <sup>i</sup>	.00	.00
	Ties	60 <sup>j</sup>		
	Total	60		

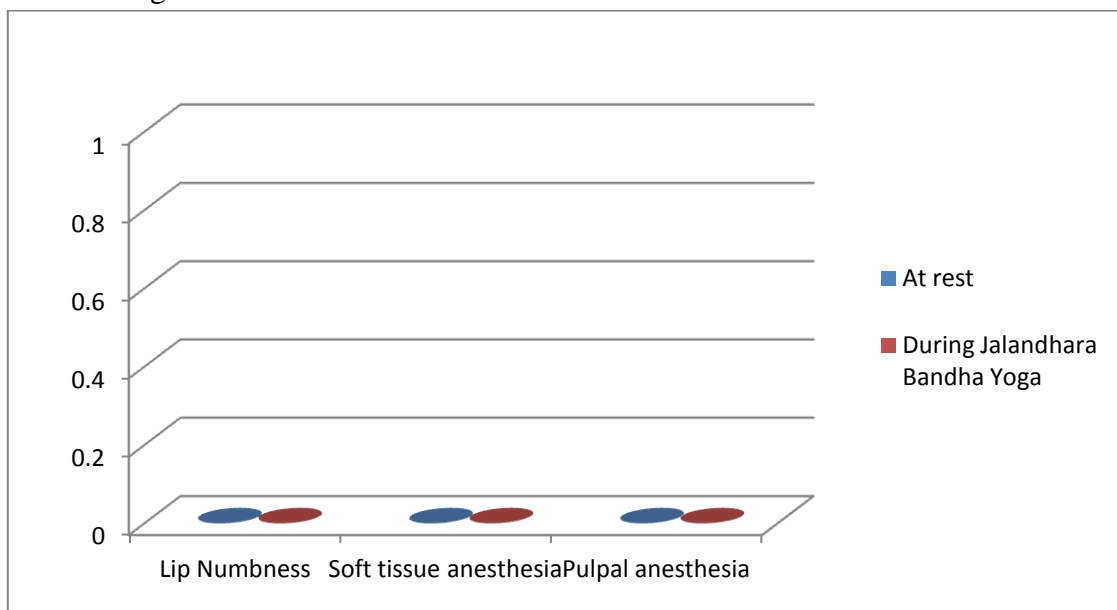
a. Group = Trial Group
b. lip numbness during JB < lip numbness before
c. lip numbness during JB > lip numbness before
d. lip numbness during JB = lip numbness before
e. soft tissue response during JB < soft tissue anaesthesia before
f. soft tissue response during JB > soft tissue anaesthesia before
g. soft tissue response during JB = soft tissue anaesthesia before
h. pulp anaesthesia during JB < pulp anaesthesia before
i. pulp anaesthesia during JB > pulp anaesthesia before
j. pulp anaesthesia during JB = pulp anaesthesia before

<b>Test Statistics<sup>a,b</sup></b>			
	lip numbness during JB - lip numbness before	soft tissue response during JB - soft tissue anaesthesia before	pulp anaesthesia during JB - pulp anaesthesia before
Z	.000 <sup>c</sup>	.000 <sup>c</sup>	.000 <sup>c</sup>
Asymp. Sig. (2-tailed)	1.000	1.000	1.000

a. group = trial group
b. Wilcoxon Signed Ranks Test
c. The sum of negative ranks equals the sum of positive ranks.



**Graph No.4:** Showing Assessment of Anesthetic Effect



Wilcoxon test was applied to assess the anaesthetic effect before and during the process for lip numbness, soft tissue response, pulp anesthesia. By looking at the mean ranks it is inferred that the mean remains the same (as 0) before and during the process for lip numbness, soft tissue response and pulp anesthesia. Hence no difference found before and during the JB with respect to anesthetic effect.

### Discussion

Jalandhara Bandha has been described classically in Hathayogapradeepika in the third chapter. It is also called as chin-lock or throat lock. When Jalandharabandha yoga is performed properly contracting the throat and pressing the chin firmly against the chest it destroys old age and death<sup>4</sup>. And also it is said it activates the Vishuddhi or Vishuddha Chakra<sup>5</sup> Jalandhara Bandha Yoga is not only used for Yogic practices but it is also used for extraction of teeth.

The pain (vedna) is increased by increase of “vata dosha”<sup>6</sup>. “Jalandharabandha” controls the prana & vata. And also in this technique, due to manipulation of pressure points it increases the pain threshold hence tooth can be extracted successfully by Jalandharabandha Yoga without giving anaesthesia.

It was observed that patients who were regular practitioners of Yoga have undergone tooth extraction by jalandharabandha yoga in a very easy, painless & comfortable way.

Paired t- test was applied to ascertain the difference between before and during the process, no statistical significant difference was noticed between the body of maxilla before and during the process with P value 0.144. Though it was statistically insignificant the mean value which was 1.65 at rest has increased to 1.8 during Jalandhara Bandha.

By looking at the mean ranks it is inferred that the alveolar process before JB was 1.69 gets increased to 2.09 during the JB which was found to be very highly significant difference with respect to alveolar process before and during the process with P value 0.000

By looking at the mean ranks it is inferred that the intermaxillary suture before JB was 1.51 gets increased to 1.74 during the JB which was found to be very highly significant difference with respect to intermaxillary suture before and during the process with P value 0.001

By looking at the mean ranks it is inferred that the ramus mandible before JB was 1.94 gets increased to 2.67 during the JB which was found to be very highly significant difference with respect to ramus mandible before and during JB with P value 0.000

By looking at the mean ranks it is inferred that the body mandible before JB was 2.05 gets increased to 2.39 during the JB which was found to be very highly significant difference with respect to body mandible before and during JB with P value 0.000

However no statistical difference found between the mandible alveolar process before and during JB with P value 0.292. Though it was statistically insignificant the mean value which was 1.75 at rest has increased to 1.89 during Jalandhara Bandha.

Wilcoxon test was applied to assess the anaesthetic effect before and during the process for lip numbness, soft tissue response, pulp anaesthesia. By looking at the mean ranks it is inferred that the mean remains the same (as 0) before and during the process for lip numbness, soft tissue response and pulpal anaesthesia. Hence no difference found before and during the JB with respect to anaesthetic effect.

### **Conclusion**

There was increase in the pain threshold of both Maxillary & Mandibular region during extraction of teeth by Jalandharabandha yoga. This helped patients to undergo tooth extractions successfully without anaesthesia by this yogic technique. However either there was lip numbness or soft tissue anaesthesia - lack of mucosal responsiveness to a sharp instrument or pulpal anaesthesia during Jalandharabandha yoga in tooth extraction.

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