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The efficacy of Myofascial trigger release and abdominal meridian massage on patients with constipation: A comparative study

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Abstract

Background: Constipation is one of the most common disorders of defecation is Constipation. Constipation is the term used to describe a constellation of symptoms like infrequent, incomplete, difficult, or prolonged evacuation or to describe stools that are too small, too hard, or too difficult to pass. However, many patients are more obsessed by the associated nonspecific symptoms of bloating, abdominal or pelvic pain and nausea.

Aim: The Aim of the study is to find out the Effect of Myofascial Trigger Release and Abdominal Meridian Massage in patients with Constipation.

Methods: Thirty subjects were randomly selected using convenient sampling method and are allocated in two groups (Group A and Group B). Group A (n=15) received Myofascial Trigger Release and Group B (n=15) received Abdominal Meridian Massage. The treatment period lasted 5 days/week of total three weeks. Pain was assessed by Visual Analogue Scale, Quality of Health was assessed by Constipation Assessment Scale was assessed on day one pre and post intervention at the end of third week.

Results: The findings of this study suggested that both the intervention are effective in reducing constipation and thus reduced the stool softeners, suppositories, or enemas but particularly Myofascial Trigger Release is more effective than Abdominal Meridian Massage in treating constipation.

Conclusion: There is significant difference in reducing pain and improves the quality of health in patients with Constipation, So it indicates that Myofascial Trigger Release can be utilized in treatment of Constipation.

Keywords: constipation, myofascial trigger release, abdominal meridian massage, visual analogue scale, constipation assessment scale

Introduction

Constipation is a very common condition that affects people of all ages. It can mean that they are not passing stools (Faeces) as often as they normally do, they have to strain more than usual or they are unable to completely empty their bowels. Constipation can also cause their stools to be unusually hard, lumpy, large or small. The severity of Constipation can vary greatly. Many people only experience constipation for a short period of time with no lasting effects on their health.

For others, Constipation can be a chronic condition that causes significant pain and discomfort. Chronic Constipation can also lead to complications, such as faecal impaction (where dry, hard stools collect in your rectum) or faecal incontinence (where you leak liquid stools)

Types of constipation

Peristaltic constipation

This type of Constipation can consist of many different symptoms or factors, but the defining elements are as follows:

- They just don't often (or rarely, never) feel the urge to have a bowel movement. They can have stool building up in their colon for days, but no urge or urgency to poo.
- If they have been constipated for a long time, this buildup of stool may not even be uncomfortable anymore.

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- When they do have a bowel movement, their stool is large and fairly wide. Even if it is in hard balls, the diameter is larger than half an inch.

Stenosis constipation

- They often feel the urge to defecate. In some cases, the urge can be frequent or continual. They may even feel the stool pushing against their anus, but when they try to poo, it is very difficult to pass stool and sometimes, or often, nothing comes out. When they do manage to poo, their stool can be any width, length or consistency.
- If they have had this type of constipation for a while, the bowel is easily trained. However, passing stool is still extremely difficult and the anus/rectum can spasm and be very tight or narrow.
- When they manage to pass stool, the stool can be very thin, sometimes only the width of a flattened pencil. They strain and push mightily and it may feel like they are passing a huge stool, but when they look in the toilet there's only a very narrow or small amount of stool.
- Stools can be soft, hard, balls, or cylinders, but rarely larger than 1/4 inch-1/3 inch
- In diameter and the maximum diameter is not usually more than 1/2 inch.

Dietary constipation

- Caused by ingestion of large amounts of foreign material such as bones, hair or fiber that mixes with feces to form hard, dry masses which are difficult or impossible to pass.

Drug-induced constipation

- May result from treatment with antimotility drugs.

Endocrine constipation

- May accompany some disorders of Endocrine glands causing reduced gastrointestinal motility, e.g. Hypothyroidism and hypercalcemia of Hyperparathyroidism.

Neurogenic constipation

- Disorders of innervations to the colon may cause an atonic colon or prevent from assuming normal posture for defecation, thereby inhibiting the desire to defecate. This is seen particularly in painful intervertebral disk lesions or musculoskeletal injuries or lesions.

Obstructive constipation

- Any impediment to the passage of feces, either within the colon, rectum or anus, or from compression by surrounding tissues can cause drying and enlargement of the fecal mass.

Spastic constipation

A form of constipation associated with neurasthenia and constrictive spasms in part of the intestine. The condition may be a sign of lead poisoning

Need for the study

- Constipation is one of the common problems faced by the population.
- This causes discomfort and pain as its interference with the daily living.

- To understand about Myofascial Trigger Release Technique.
- To understand about Abdominal Meridian Massage.
- To find out the most effective technique for treating Constipation.
- To eliminate the use of laxatives.
- Maintain the daily living activities.
- To have in depth knowledge among Constipation patients.
- Hence I concluded to do my research on "The Efficacy of Myofascial Trigger

Aim of the Study

To find out the effectiveness of Myofascial Trigger Release and Abdominal Meridian Massage on constipation and reverse the normal physiology.

Objective of the Study

- To have in depth knowledge about constipation.
- To improve the Quality of Life in patients with constipation.
- To know about Myofascial Trigger Release
- To know about Abdominal Meridian Massage.
- To find out the effectiveness of Myofascial Trigger Release and Abdominal Meridian Massage on constipation.

Operational definitions

Constipation

The condition of being unable to easily release solid waste from your body; the condition of being unable to have a bowel movement easily.

Merriam Webster 1828

It is defined as defecation that is unsatisfactory because of infrequent stools [3 times weekly], difficult stool passage. [With straining or discomfort] or seemingly incomplete defecation. Stools are often dry and hard, may be abnormally large or abnormally small.

Dr. Richard Daper

Straining at least 25% of defecations. Lumpy or hard stools in at least 25% of defecation. Sensation of incomplete evacuation for at least 25% of defecations. Sensation of anorectal obstruction or blockage for at least 25% of defecations Manual maneuvers to facilitate at least 25% of defecations [e.g. digital evacuation, support of pelvic floor]. Fewer than 3 defecation per week. Loose stools are rarely present without use of laxative

-The Rome III diagnostic criteria

Abdominal meridian massage

It is a clockwise massage over your abdomen (tummy) that takes 10 to 20 minutes. It aims to relieve Constipation and can be done in most positions – lying, sitting or standing.

-Nam M

Myofascial trigger point

"Trigger Point" is the painful point can be felt as a nodule or band in the muscle, and a twitch response can be elicited on stimulation of the trigger

- Dr. Janet 1942

Variables of the study

(a) Independent variables

- Myofascial Trigger Release

- Abdominal Meridian Massage

(b) Dependent variables

- VAS (Visual Analogue Scale)
- CAS (Constipation Assessment Scale)

Hypothesis

(a) Null hypothesis

There is no significant improvement in the effect of Myofascial Trigger Release and Abdominal Meridian Massage on patients with constipation.

(b) Alternate hypothesis

There is a significant improvement in the effect of Myofascial Trigger Release and Abdominal Meridian Massage on patients with constipation.

Assumption

The study has been conducted assuming that Myofascial Trigger Release and Abdominal Meridian Massage will improve normal physiology in patients with Constipation.

Projected outcome

Based on review of literature, it is expected that there will be significant improvement in Myofascial Trigger Release in patients with Constipation.

Materials and Methodology

Materials

- Treatment couch
- Treatment chair
- Towel
- Stop clock
- Stethoscope
- B.P Apparatus
- Aroma Oil
- Pillows
- Blankets

Methodology

- All patients underwent a general Abdominal Examination and Posture Evaluation.
- The Bristol stool scale is conducted to confirm the diagnosis of Constipation.
- VAS is conducted to know the severity of constipation.
- Constipation Assessment Scale is conducted to know how Constipation affects the Quality of Health in patients with Constipation

Population

Patients with age group of 40-60 years having Constipation with both sexes.

Criteria for sample selection

(a) Inclusion criteria

- Both genders.
- Age group between 40-60 years.
- Bowel frequency of less than 3 times per Need to strain more than 25% of the time during defecation.
- Lumpy or hard stools for more than 25% of bowel movements Sensation of incomplete evacuation or anorectal blockage for more than 25% of bowel movements Need for manual maneuvers (digital

evacuation or support of the pelvic floor) to facilitate more than 25% of bowel movements

(b) Exclusion criteria

- Age group more than 60 and below 40.
- Hip dislocations
- Recent fractures of hip joint
- Recent surgeries of hip joint
- A history of malignant bowel obstruction or an abdominal growth
- A history of inflammatory bowel disease, Crohn's disease or ulcerative colitis Spastic colon (not to be confused with spasticity of the abdominal wall) experienced in patients with irritable Bowel Syndrome
- An unstable spinal injury
- Pregnancy
- Recent scarring or abdominal surgery.
- Allergies
- Uncooperative patient

Source of Data

- Neuro Speciality Hospital, Erode.
- Bharath Neuro Center, Erode.
- LKM Hospital, Erode.
- SIMS Hospital, Erode.
- Out Patient Department- Nandha College of Physiotherapy, Erode

Sample sizes

Sample size is 30 subjects

Group A-15 patients

Group B-15 patients

Study design

Quasi Experimental Design

Pre and Post Experimental Study Design

Sampling method

Convenient Sampling Method

Duration of the Study

8 Months

Treatment duration

- Study was carried out for 3 weeks for each patient.
- Myofascial Trigger Release was performed once in a day for 5 days in a week.
- Abdominal Meridian Massage was performed once in a day for 5 days in a week

Parameters

(a) Bristol stool chart

The Bristol stool scale is part of the diagnostic triad for irritable bowel syndrome: pain/discomfort (quality and quantity); bowel habit (quality and quantity); and bloating. The seven types of stool are:

- Type 1: Separate hard lumps, like nuts (hard to pass)
- Type 2: Sausage-shaped, but lumpy
- Type 3: Like a sausage but with cracks on its surface
- Type 4: Like a sausage or snake, smooth and soft
- Type 5: Soft blobs with clear cut edges (passed easily)
- Type 6: Fluffy pieces with ragged edges, a mushy stool
- Type 7: Watery, no solid pieces, entirely liquid

Types 1 and 2 indicate constipation, with 3 and 4 being the ideal stools (especially the latter), as they are easy to defecate while not containing excess liquid, and 5, 6 and 7 tending towards diarrhoea

(b) Visual analogue scale

A visual analogue scale (VAS) is a measurement instrument that tries to measure a intensity of pain level.

(c) Constipation assessment scale

The Constipation Assessment Scale 8 items tool design to assess the severity of constipation.

Procedure

- Subjects were selected by convenient sampling method. 30 subjects who fulfilled inclusion and exclusion criteria were selected by random sampling method, out of them 15 were allotted in Group A and 15 in Group B.
- Subjects were clearly explained about the study and written informed consent was obtained from the subjects who fulfilled the criteria.
- After completing the informed content and they were explained about the scale and the scale was administered.
- Proper instructions such as purpose, safety measures, comfort, precautions and psychological support were given to the subjects.
- All vital signs were checked.
- While doing the assessment, the subject’s willingness to continue the procedure with or without rest was given preference.
- Both Group A and Group B subjects were involved for pretest assessment.
- Group A underwent Myofascial Trigger Release 10-20 minutes once in a day 5days per week.
- Group B underwent Abdominal Meridian Massage 10-20 minutes once in a day 5days per week.
- The total duration is 30 minutes.

(a) Group-A [Myofascial trigger release]

Types of myofascial release:

Direct myofascial release

- The Direct Myofascial Release method claims to engage the myofascial tissue
- "Restrictive barrier" (tension).
- Practitioners use knuckles, elbows, or other tools to slowly stretch the fascia by applying a kilogram – force or tens of Newton.
- Direct Myofascial Release is an attempt to bring about changes in the myofascial structures by stretching or elongation of fascia, or mobilizing adhesive tissues.

Technique

Michael Stanborough borrows principles from Rolfing which can be applied for direct myofascial release technique

- Land on the surface of the body with the appropriate 'tool' (knuckles, or forearm etc.)
- Sink into the soft tissue.
- Contact the first barrier/restricted layer.
- Put in a 'line of tension'.
- Engage the fascia by taking up the slack in the tissue.
- Finally, move or drag the fascia across the surface while staying in touch with the underlying layers.

- Exit gracefully.

Indirect myofascial release

The indirect method involves a gentle stretch, with only a few gram of pressure, which is said to allow the fascia to “unwind” itself, guiding the dysfunctional tissue “along the path of least resistance until free movements is achieved.

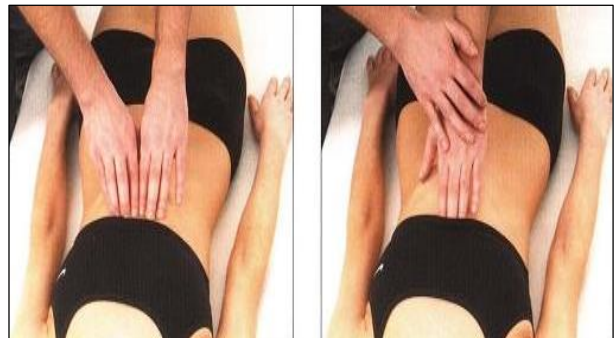
General procedure

The indirect myofascial release techniques as follows:

- Lightly contact the fascia with relaxed hands.
- Slowly stretch the fascia until reaching a barrier/restriction.
- Maintain a light pressure to stretch the barrier for approximately 3-5 minutes.
- Prior to release, the therapist will feel a therapeutic pulse (e.g. heat).
- As the barrier releases, the hand will feel the motion and softening of the tissue.
- The key is sustained pressure over time.

Techniques

Begin the stroke above the pubic hair, or higher if it is more appropriate for your client. Have your fingers curled to sink into the layer of the rectus abdominis, and then uncurl them using your finger extensors to engage the tissue and stretch it away from the pelvis. Dropping your elbows allows you to remain at the level of the muscle without diving deeper into the abdomen itself, which could cause pain and impingement of the more fragile underlying tissue



Rectus Abdominis Release

Erector spinae release

When the spine flexes and the erectors are fascially restricted, the tendency is for the erectors to migrate laterally away from the spinous processes.

The reverse occurs when the spine is held in relative postural extension: the erectors myofascial moves medially toward the spinous processes.



Erector Spinae Release

To help correct the medial or lateral migration of the erectors and their associated tissue, the tissue can be drawn medially or laterally

Diaphragm release

Using a little more slack in the rib cage, low the fingers of the working hand to sink under the anterior ribs just lateral to the rectus abdominis and curl into the anterior aspect of the arch once your hands are in position, you can simply draw the tissue in whichever Direction is required by moving your arm to guide your wrist forward or back.

The fascia of the diaphragm may also need to be drawn superiorly, by extending your fingers up along the anterior surface of the rib cage, or inferiorly, by flexing your fingertips into the tissue and slowly withdrawing your hand from below the thorax

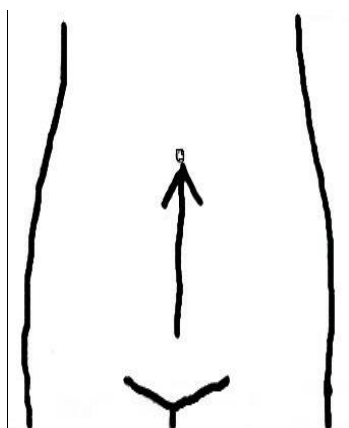


Diaphragm release

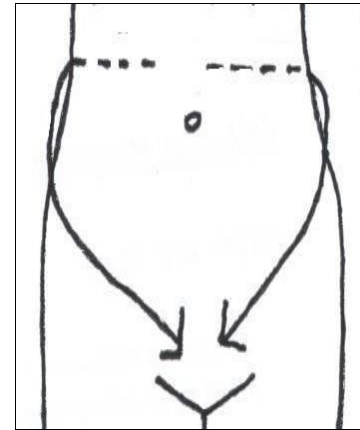
Notice the low angle of the forearm, which allows the fingers of the working hand to be almost parallel with the rib cage and their by not press into the abdomen.

(b) Group-B [Abdominal meridian massage]

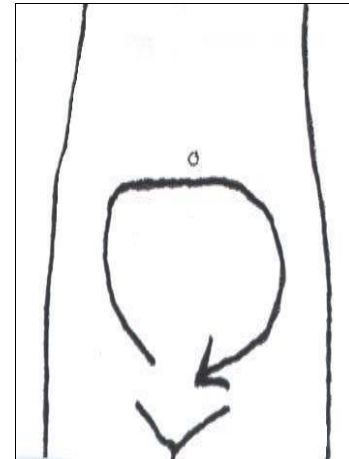
- Step 1: Stroke upwards 3 times
 - Step 2: Stroke towards the bottom of your tummy 3 times
 - Step 3: Effleurage or circular stroking
 - Step 4: Palmer kneading (one hand performs a circular movement, quickly followed by the other, moving down the stomach)
 - Step 5: As Step 4, but moving up the stomach
 - Step 6: Repeat steps 4 and 5
 - Step 7: Stroking
 - Step 8: Hand vibrations over the belly button area
- Repeat each of the above movements several times.



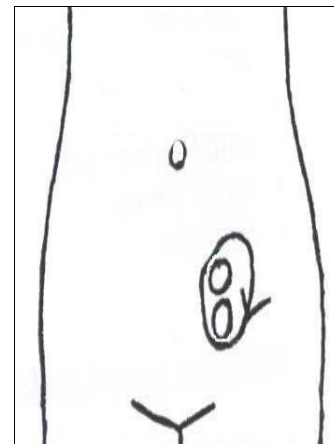
Step 1



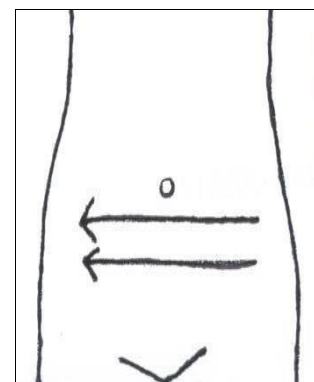
Step 2



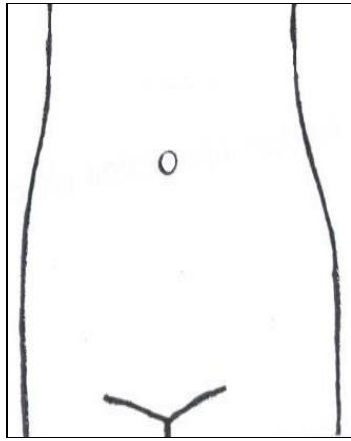
Step 3



Step 4



Step 7



Step 8

Abdominal Meridian Massage

Data presentation and statistical analysis

Statistical tools

The statistical tools used in the study are paired t-test and unpaired t-test.

Paired 'T'-Test

The paired t-test was used to find out the statistical significance between Pre and Post t-test values of VAS and Constipation Assessment Scale Before and after treatment for Group A and Group B.

Formula for paired t-test,

$$S = \frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}$$

$$t = \frac{\bar{d}\sqrt{n}}{s}$$

d = difference between the pretest Vs post test

\bar{d} = Mean difference

N = Total number of subjects

S = Standard deviation

Unpaired 'T'-Test

The unpaired t-test was used to compare the statistically significance difference of VAS and CAS before and after treatment for Group A and Group B.

Formula for unpaired t-test,

$$S = \sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}$$

$$t = \frac{|\bar{x}_1 - \bar{x}_2|}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

n_1 = Total number of subject in group A

n_2 = Total number of subject in group B.

x_1 = Difference between pretest and posttest of Group A.

x_2 = Mean difference between pretest and posttest of group A.

\bar{x}_1 = Difference between pretest and posttest of Group B.

\bar{x}_2 = Mean difference between pre-test and post-test of Group B.

s = Standard Deviation.

Main result

Mean difference between group A and group B of vas and cas

Groups	Mean difference	
	Vas	Cas
Group-a	5	8
Group-b	2	5

Standard deviation between group A and group B of Vas and Cas

Groups	Standard deviation	
	Vas	Cas
Group a	1	1.38
Group b	0.67	1.18

Comparison of the paired 'T'test and table value between group A and group B

Groups	Calculated ' t' value		Table value	Significance
	Vas	Cas		
Group a	19	22.02	2.15	Significant
Group b	11.37	16.10	2.15	Significant

Comparison of unpaired 'T' test and table value between Vas and Cas

Parameters	Unpaired 't' test	Table value	Significance
Vas	9.9	2.05	Significant
Cas	6.52	2.05	Significant

Results and Discussion

Results

The study sample comprised 30 patients, of which 15 were male and 15 were female. The mean age of patients was 56 years. The diagnostic test for Constipation was positive in 30 patients. The median time interval between CAS and VAS questionnaires applied before and after therapy was 3 weeks. Among 30 patients, 15 were treated with Myofascial Trigger Release, and 15 were treated with Abdominal Meridian Massage.

The pre and posttest values were assessed by VAS and CAS in group A. The mean difference value is 5 and 8 respectively. The standard deviation value is 1 and 1.38 respectively. The paired 't' test value for VAS and CAS is 19 and 22.02. The paired 't' test value is more than table value 2.15 for 5% level of significance.

The pre and posttest values were assessed by VAS and CAS in group B. The mean difference value is 2 and 5 respectively. The standard deviation value is 0.67 and 1.18 respectively. The paired t test value for VAS and CAS is 11.37 and 16.10. The paired 't' test value is more than table value 2.15 for 5% level of significance.

The calculated 't' values by unpaired 't' test were 9.9 and 6.52. The calculated 't' values were more than the table value 2.05 for 5% level of significance.

The paired 't' test values have shows that Myofascial Trigger Release was more effective than Abdominal Meridian Massage for patients with Constipation. The unpaired 't' test values have shown that there was significant difference between two groups in showing improvement in their quality of life in patients with Constipation.

Discussion

While consideration of improving the Quality of Life in patients with Constipation, I found there was a effective and good improvement.

There was a statistically significant difference in the impact of Constipation on the QoL of patients before and after Myofascial Trigger Release in all aspects (physical, functional and emotional). This demonstrates a positive effect of this Myofascial Trigger Release on the QoL of patients. The effectiveness of repositioning Myofascial Trigger Release for the treatment of Constipation was good. Repositioning Myofascial Trigger Release are faster and more practical than other therapies, there are also no significant adverse effects, especially when compared to drug therapy.

Studies on the factors affecting the QoL of patients with constipation are relevant for clinical reasons, when placed alongside with the results of constipation testing, professionals are able to better define the best approach by taking into account the changes in each patient with Constipation. The VAS and CAS may also be an interesting tool for checking the benefits and efficacy of conventional methods. It may be applied before and after therapy, which increases patient compliance each subject may check his or her own difficulties in the questionnaire. Healthcare professionals in Constipation should bear in mind that recognizing the negative effects on the QoL of patients with Constipation may be an important step in the rehabilitation process. This is a new approach that has been used more often in medical practice for patients with Constipation.

According to Erellyn Hecht that some of the physical therapy treatments for constipation include external & internal rectal myofascial release techniques, trigger point release techniques, biofeedback therapy to help down train tight muscles & or up train weak muscles, instruction to correct bowel techniques to prevent straining instruction in home exercise program to stretch & strengthen. Pelvic floor, hips & gluteal muscles

Limitations

- The study has been conducted on small sized sample only.
- This study took shorter duration to complete.
- This study is not extended more than 3 weeks for a patient due to time constraint

Recommendations

- A similar study may be extended with larger sample.
- The future study can be compared with various therapy also.
- The Myofascial trigger release may be applied to the other conditions like irritable bowel syndrome, spastic colon etc.

This Myofascial Trigger Release may be compared with other habitional exercises also.

Summary and Conclusion

Patients with Constipation present with a history of pain and discomfort. Whereas many treatment have been described, Myofascial Trigger Released is a simple effective treatment for most patients with objective or subjective Constipation. To date, no factors have been identified to indicate an increased risk of Constipation recurrence after successful treatment.

In our samples, Myofascial Trigger Released resulted in a positive impact on the QoL in the Physical, Functional and Emotional levels. The VAS score and CAS Scale differences in Constipation patients before and after treatment were statistically significant.

Through the results, alternate hypothesis is accepted and also the study could be concluded that there is a significant difference between MYOFASCIAL TRIGGER RELEASE and ABDOMINAL MERIDIAN MASSAGE in improving the QoL in patients with Constipation.

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