

## Massage for Infantile Colic: Review and Literature

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### Abstract

#### Background

Infantile colic is a painful phase in the first months of infancy but no safe and effective conventional treatment exists. Massage is used in traditional medicine as a control and treatment method for infantile colic. The aim of this study is to evaluate the efficacy and safety of massage in the control and treatment of infantile colic.

#### Materials and Methods

We searched international database such as PubMed, EMBASE, Cochrane library, and Iranian databases such as SID, Magiran, Iranmedex using a searching strategy with key words "Infantile colic", "Massage", "Complementary of Alternative Medicine" during 2000 to 2015. Analysis of data extraction and quality evaluation of the literature were performed independently by two investigators.

#### Results

Most articles provides the strongest evidence for benefits of massage in stress, anxiety reduction, pain control, cancer, skin disease, weight gain, sleep, promote growth, development in premature infants, neuromuscular and gastrointestinal disease such as infantile colic. The infantile colic massage helps relax the gastrointestinal tract and good digestion.

#### Conclusion

Our findings demonstrated that pediatric massage therapy is effective in the treatment of infantile colic. Compared to other possible treatments for colic, massage is a safe and enjoyable procedure; the risk of serious adverse effects is low. The pediatrician should feel comfortable discussing massage therapy with patients and be able to refer patients to a qualified massage therapist as appropriate.

**KeyWords:** Complementary of Alternative Medicine, Infantile colic, Massage.

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## 1- INTRODUCTION

Infantile colic is a typical pediatric disorder worldwide in approximately 20% of infants. About one in five infants develop colic in the first three months of life. Colicky babies cry hard and continuously, at about the same time each day, at least 3 days a week. Although it is considered to be a self-limiting and benign affection, it is a stressful condition for parents, also because it is frequently undervalued by physicians (1, 2). The diagnosis is mainly clinical and it is based on physical examination in order to identify signs and symptoms. A complete physical examination is essential to evaluate the correct feeding of the infant. It is necessary to look for eczema or diarrhea because they may suggest a common condition such as cow's milk proteins allergy. Biochemical and radiological exams are not indicated if there is a negative physical examination (3). Infantile colic is common, but no safe and effective conventional treatment exists. The treatment of infantile colic consists of dietary, pharmacological and behavioral

interventions (**Table.1**) (4-6). For the following reasons side effects and limitation use up of conventional therapy in many patients, adverse events, high burden medication, drug interaction, long of treatment duration, nonresponsive and relapse in some patients caused those patients to utilize complementary and alternative medicines. It is essential to find a safe and effective treatment that curtails the colic period (4,6).

Baby massage has many benefits and massage therapy for newborns suggested in most of countries. Mothers have traditionally use of soft touch and pressure of the abdomen to control pain and bloating children. Massage in Iranian and China traditional, Ayurveda medicine in ancient India has a long history. Several studies on the effect of massage on pain management, stress, muscle weakness, growth children and infantile colic, reported (7,8). The aim of this study is to evaluate the efficacy and safety of infant massage in the control and treatment of infantile colic.

**Table 1:** Treatment of infantile colic (4-6)

Conventional Treatment	Complementary and Alternative Therapies
<ul style="list-style-type: none"> <li>• Pharmacological treatments ,</li> <li>• Anti-cholinergic drugs,</li> <li>• Antispasmodic drugs,</li> <li>• Eliminating foods that cause gas, allergy,</li> <li>• Dietary advices ( type of nutrition),</li> <li>• Breast-fed infants,</li> <li>• Bottle-fed infants.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Nutrition and Supplements,</li> <li>▪ Probiotics,</li> <li>▪ Herbal medicine,</li> <li>▪ Homeopathy,</li> <li>▪ Chiropractic,</li> <li>▪ Acupuncture,</li> <li>▪ Behavioral interventions,</li> <li>▪ Playing soft music,</li> <li>▪ Warm baths,</li> <li>▪ Aromatherapy.</li> </ul>

## 2- MATERIALS AND METHODS

PubMed, Google scholar, EMBASE, Cochrane library, Scopus and Iranian databases such as SID, Magiran, Iranmedex, Irandoc were thoroughly searched to find articles in which infantile colic. Literature search was performed in these databases to find articles in English

and Persian language, using the key words, "Infantile colic" and "Massage" and "Complementary and Alternative Therapies" in the title, keywords, and abstracts in February 2015 by two independent reviewers. Relevant articles with the following search terms (Infantile colic) AND (Massage) were selected and used for data extraction. Articles were

excluded if they were unrelated to the purpose of the study. Reference lists of articles were searched also include other related articles and to minimize the possibility of bias or any other information.

### 2-1. Study selection

There was no time limitation for the included articles. Various types of the articles were included in this literature review. Inclusion criteria were documents in which the Complementary and Alternative Therapies (CAM) were studied in infantile colic. Duplicated and irrelevant papers were excluded in the first step by reviewing the title, keywords, and abstract of papers. Papers were also excluded if colic had been evaluated in adult patients.

### 2-2. Data synthesis

Data including the name of first author, country of origin, publication date, study design, and concluded results were extracted based on the main purpose of this study. All available data including total number of participants, demographic data, and biochemical markers were obtained as possible. Data were categorized based on the results reporting the association between massage in children. All processes of data extraction and study selection were based on the recommendation of PRISMA 2009 checklist (9).

## 3- RESULTS

The etiology of infantile colic is unknown and considered multi-factorial (1). Possible mechanisms include physiological factors such as painful intestinal contractions, altered gut motility, immaturity of gut function, lactose intolerance, food hypersensitivity, altered intestinal flora and gas, gut microbiota, psychological factors like inadequate mother – child interaction, anxiety, and infant temperament. Even though investigations on treatments for infantile

colic are proceeding (e.g. reassurance, education, dietary, pharmacological, etc.), the effectiveness of many of these is low and not safe (2, 3). Recently, the research for a new therapeutic approach to infantile colic has been tried.

Some researchers report that there is some evidence of benefits complementary and alternative therapies in pediatric disease (7,8). The prevalence of CAM using among children varies between 9% and 70% depending on the definition of CAM, kind of disease, such as chronic illness as cancer, juvenile rheumatoid arthritis, asthma and inflammatory bowel disease (4). Massage is used in CAM as a control and treatment option for infantile colic. Massage is an original traditional treatment method used by trained practitioners in Iranian and Chinese medicine (9). Massage can include a broad diversity of styles and approaches or by a modern Western Medical view, where massage can be described as "sensory stimulation of the nervous system" (10-12). Some research suggests that "massage" may help reduce symptoms of colic (4, 5, 8).

A study by Ferber et.al supported the effects of massage on colicky infants (13). In one study, infants who received an aromatherapy abdominal massage using lavender oil had fewer colicky symptoms compared to those who didn't receive a massage (14). Two controlled trials of children with infantile colic treated with massage have been published. Both studies concluded that massage significantly reduced crying and pain-related behavior without noticeable adverse effects (14, 15). Another randomized-controlled study involved 175 infants in Turkey, reported significant reduction in crying hours per day in massage group (16). Results of Anderson et al. (2000) in showed a significant improvement in the eczema of children following massage therapy (11).

Dobson et al., in a review study identified six studies with 325 infants. Of the six included studies, five were suggestive of a beneficial effect and one found no evidence that manipulative therapies had any beneficial effect on the natural course of infantile colic. Five studies measured daily hours of crying and these data were combined, suggesting that manipulative therapies had a significant effect on infant colic - reducing average crying time by one hour and 12 minutes per day. At the end they reported that, there are inadequate data to reach any definitive conclusions about the safety of these interventions (17). The results of nine studies suggest that infant massage has no effect on growth, but provides some evidence suggestive of improved mother-infant interaction, sleep and relaxation, reduced crying and a beneficial impact on a number of hormones controlling stress, and data from the 13 studies regarded to be at high risk of bias show uniformly significant benefits on growth, sleep, crying and bilirubin levels (18).

The study by Ferber et al. with 57 infants that massage therapy by mothers was compared to a control group. Over the 10-day study period, the treatment groups gained significantly more weight compared to the control group. They suggested that Infant massages by mothers are able to achieve the treatment within the neonatal intensive care unit (19).

Field et al., reported the massage period the children, improved clinical condition including less redness, scaling, excoriation, and pruritus in skin disease (20). The clinical study in Iran reported that massage therapy could improve the sleep behaviors, weight gain and also length in infants. These positive effects on growth of infants may result from augmented of growth hormone release due to an increment in duration of the infant's night sleep (21).

Huhtala et al., to evaluate the effectiveness of infant massage compared with that of a crib vibrator in the treatment of infantile colic, they did randomized, controlled trial with 58 infants for 4-week. Results of two methods were similar. 93% of the parents in both groups reported that colic symptoms decreased over the 3-week intervention (61% in the massage group and 63% of in the crib vibrator group). There were no reports of serious side effects from massage (22).

#### 4- DISCUSSION

Massage is an effective method of relaxation and therapy, and one of the most popular methods of alternative medicine in the world. Massage consists of a series of hand gestures and skills on a regular basis and certain body tissues to influence the nervous system, muscle, skin, joints and blood circulation done. Today, massage is accepted in all medical schools. Infant massage is increasingly being used in the health system for low-risk babies, primary care and treatment of disease. Most articles provides the strongest evidence for benefits of massage in stress, anxiety reduction, pain control, cancer, skin disease, weight gain, sleep, promote growth, development in premature infants, neuromuscular and gastrointestinal disease. Although the level of evidence is different, however, anxiety reduction has shown the strongest effect.

Many researchers are trying to understand the mechanism of massage in control disease. The researchers proposed that massage therapy stimulated melatonin secretion and rest-activity rhythms in infants. The colic massage helps relax the gastrointestinal tract and good digestion, may help calm the baby or reduce gas and it can bring comfort to the organs that are connected to the stomach and gastrointestinal tract, and May help helped relax infants and urge them to sleep (23-25).

Massage therapy seem it works similar parasympathetic effects (26), psychological mechanisms, improves hypothalamus-pituitary-adrenocortical axis function, and may improve organ function (26, 27).

## 5. CONCLUSION

Our findings demonstrated that pediatric massage therapy is effective in the treatment of colic. Compared to other possible treatments for colic, massage is a safe and enjoyable procedure; the risk of serious adverse effects is low. The pediatrician should feel comfortable discussing massage therapy with patients and be able to refer patients to a qualified massage therapist as appropriate.

## 6- CONFLICT OF INTEREST

The authors had not any financial or personal relationships with other people or organizations during the study. So there was no conflict of interests in this article.

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