

# Colic in Newborn and the Functional Pathology of the Cervical Spine: A Catamnestic Study of 150 Cases

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"This was not a little 'whimper, whimper pay-attention-to-me' cry. ... My baby was screaming and could not be consoled" <sup>1</sup>(1)

## Abstract

This article examines the current concepts in dealing with newborn suffering from colic or cry-babies. Discussion the shortcomings of nutritional or psychological models leads to the arguments for a biomechanical origin in most of these cases.

Based on 20 years of practical experience and more than 30.000 babies treated, the effect of spinal manipulation is demonstrated by analyzing a random sample of 150 babies treated for 'excessive crying'. In more than half of these cases a complete normalization could be achieved by one treatment in the ensuing week. Besides one plate of the cervical spine in a.p. orientation no apparative diagnostics were necessary. As all of these children – and their families – suffered from weeks of crying and other therapies were completely unsuccessful, the efficiency of manual therapy in these cases seems to be obvious enough to make it a serious contender for the treatment of colic.

## Key Words

Manual therapy, colic, KISS syndrome, infant, newborn, manipulation, cervical spine

## Introduction

Colic is often defined by the "rule of three": crying for more than three hours per day and for more than three days per week and for longer than three weeks, in an infant who is well-fed

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<sup>1</sup> 40 year old Manhattan psychiatrist & mother (cit. Groopman, 2007)

and otherwise healthy”(2, 3). Such a quantitative approach may be an alluring definition at first sight, but at the end of the day it is the endurance level of the parents that determines where and when professional help is needed. Telling an exhausted mother that her child does not suffer from any relevant problem as it cries for only 2 weeks or less than 3 hours per day may not be the most appropriate approach(4).

The incidence of crying varies widely, between 5- 21%(1, 5, 6). When we consider that tape recordings of wailing infants were used in Guantanamo as instruments of psychological stress(1) we realize how this can profoundly impact a parent. Kitzinger’s remark comes to mind: “The sound of a crying baby ... is just about the most disturbing, demanding, shattering noise we can hear”(cit.n.(1)). “Clinicians should be aware of the risks of abuse in children known to cry a lot”(7). Darwin remarked that “Infants, when suffering even slight pain, moderate hunger, or discomfort, utter violent and prolonged screams. Whilst thus screaming their eyes are firmly closed, so that the skin round them is wrinkled, and the forehead contracted into a frown”(8).

Crying babies are by no means a ‘modern’ problem. Already in the 18<sup>th</sup> century St. Plouradou was implored by helpless parents in the French Pyrenees to calm their newborn(9).

The Sears write in their ‘Baby Book’ “A baby whose cries are not answered does not become a ‘good’ baby – he does become a discouraged baby”(10). So the point of departure in any therapeutic context has to be to take the parents’ anguish seriously and be sympathetic to their distress. This approach does not necessitate underrating the role of the parents – or their expectations - in establishing the crying cycle. L.E.Holt explained in his classic “The Care and Feeding of Children” that a baby should be left to cry for up to half an hour a day: “It is the baby’s exercise”(11). If one respects the time limit this bit of advice may still be valid after all these years.

Crying is a means of communication and as such vastly dependent on the reaction elucidated in the receiver of the message. But for all practical purposes this is a secondary problem arising after the start of the crying. Handling instructions should always be part of the therapy of a colicky baby, but in a non- condescending way. More often than not mothers refer to the advice given by their paediatrician as dismissive in the sense that the baby’s crying was provoked by the over- indulgent behaviour of the mother – and it will stop after a few weeks, anyway. Such an advice puts the mother in a catch-22 situation: If the baby’s crying improves she is obliged to the advice of the doctor – if not, it is still her fault.

“Despite its salience in the early postnatal months, colic remains a mysterious and largely unexplained behavioural syndrome”(12), Barr remarked. Three questions need to be added to this remark:

- Do we talk about the same thing? and
- Are the problems really ‘behavioural’?
- Are there any long-term consequences of this early episode?

Barr realized that any rigid definition of crying time and duration, while apparently facilitating statistical analysis, may fall short of the needs of the families in distress. Being confronted with a mother whose baby suffers from incessant crying is a disturbing experience for a young doctor. He is not alone in that; old hands admit their helplessness but insist: “I am too impressed by the parental feelings of helplessness and hopelessness, by their sentiment of

anger and fright, their idea that something is seriously wrong with their child to be able to leave them alone with this essentially self-limiting problem" (13).

After more than 20 years of practical experience (with cry babies and pediatricians) two problems have emerged regarding the ongoing riddle of how to treat these infants. We have to admit that there are several causes for incessant crying and the role of functional disorders needs to be recognized by pediatricians. First and foremost we have to exclude those cases which are indeed temporary, mild and not in need of specific treatment. Lehtonen et al.(14) start a survey of the literature with the remark "that the typical description of colic syndrome as benign is at least incomplete and arguably seriously deficient". It is agreed that the vast majority of the cases do not need or merit complicated treatment, but those where children and family suffer should stimulate the creativity of the care- givers to find an appropriate treatment.

Upon searching the medical literature one finds the 'usual suspects' for colic, i.e. food, maternal communication and risk factors like smoking. This is all well and good, but how do we proceed from there? Brazelton's advice from 1962 "to keep nutritional advice as vague as possible"(15) still seems to hold true today. Wading through the amazing amount of available publications one gets the impression that everybody will find what they are looking for, anyway.

As more and more specialized institutions began offering their services to the disturbed and suffering families a certain ecology of admissible explanations became established. Like in an all other medical problems colic is never monocausal. Often the removal of even a minor component can help to improve the situation so much that peace is re- established in the family. For those concerned with a specific approach this success of their therapy is interpreted as a proof of the validity of their pathogenetical model. We would be fooling ourselves if we did not admit to the same foible.

So who is right? One argument to take into account is the amount of effort necessary for a given therapy. If two approaches are more or less equivalent in their ameliorative effect the one with fewer interventions, less costly procedures and the least pain necessary should be preferred.

## Functional and evolutionary aspects of crying

The human baby depends more on the help and protection of its caregivers than other newborn mammals. Without constant protection its survival rate would be a matter of days or even hours. Effective means of communication are thus of paramount importance. Vocal signals have a role in long distance communication and can alert the caregiver – in most cases the mother – even where visual contact is prevented; crying is a "biological siren"(16). Once alerted to the needs of the child the mother approaches and visual clues start to come into play, primarily facial expressions(17). Another step further and the distressed child is grasped which brings another signaling level into play, i.e. posture, muscle tonus, heart rate, sweating etc(18, 19).

Crying is often the initial alert to attract attention. There is considerable discussion about the distinctive qualities of crying. Some researchers attribute categorical information to crying (20, 21) whereas others assume that the information contained is limited more or less to a positive or negative connotation (22); Gustafson sums up recent research in stating that "infant crying fits much better with notions of graded signals"(23). Seen from a practical point

of view this information content would be perfectly reasonable and sufficient, as crying alerts by giving this gradual information (How quickly do I have to be there?) and is then supplemented by facial and body signals.

Discussing the evolutionary aspects of crying leads one to consider the negative aspects as well, too: unnecessary noise alerts predators and – even more important today – can elucidate negative emotional responses. Incessant crying is a proximate risk factor for child abuse(18, 24, 25).

To maintain a positive relationship with the caregiver the child has to convey as much specific information as possible. Facial expressions are the most important tool for this differentiation(17, 26). An effective modulation of the repertoire of facial information necessitates visual contact between child and caregiver. As this presupposes conscious control of head and eye movements children with an impaired function of the occipito/cervical (o/c) junction are less able to do so.

It takes two parties to perceive the crying of a baby as something beyond the ordinary. The transition between crying, temper tantrum and colic is constructed on the base of the effect the child's vocalizations have on those around.

Crying is an activity which consumes a lot of energy. It is mostly accompanied by other signs of physical exertion like clenched shoulders, fisted hands and tensed trunk muscles. These signs turn the attention of the observer onto a biomechanical component.

### Why is the effect of manual therapy not more widely accepted?

Several publications document the positive effects of manual therapy in the treatment of colic(27-30). In most cases the children were treated several times on different regions of the spine, but not in the occipito/cervical junction. All protocols included several treatments over 1- 10 weeks. During this time many instants of colic subside spontaneously, certainly the less dramatic cases.

Due to the length of the treatment and the close personal interaction between therapist and family it is almost impossible to 'blind' such a treatment. In Olafsdottirs paper a considerable improvement was documented – but the nurse acting as control was as successful as the treatment. From the viewpoint of the mother (let alone the baby's – who is not asked) it is a moot point to distinguish between the empathy and communication on one hand and the 'real' treatment on the other. Leboyer observed the baby massage of Indian mothers and many of the details shown there to soothe crying children comprise these two aspects of help(31). While doing research into the effectiveness of manual therapy for the treatment of school- children's' headache we realized that these two components of our treatment are equivalent(32) and that we would need sample sizes of over 400 patients to control for the effect of a single treatment in order to reach statistically significant results.

In focusing on the o/c area and limiting our intervention to one treatment we avoid superfluous visits. Leaving the babies enough time to react – and alerting the parents to the fact that an initial irritation of 1-2 days can ensue in ca. 10% of the cases - we create an efficient procedure which allows the pediatricians to stay in charge, thus facilitating referrals to manual therapists. We felt that the fear of 'losing' the patients is one reason families are not told about the possibilities of treatment of the o/c area.

A second – and even more subtle – aspect is to address the individual competence of the therapist. Any ‘hands-on’ therapy like surgery, physiotherapy and all methods of manual treatment depend crucially on the sensibility, knowledge and ability of the therapist. This makes it difficult to recruit entire groups of therapists for an evaluation as the data would only be an average of the quality of all participants; this necessitates even bigger samples if entire groups of therapists are to be included.

Those practicing manual therapy (or chiropractic, osteopathy etc.) in infants know about the impact of functional disorders on the general situation of an individual. For most of the traditionally trained doctors this dimension of pathology is difficult to fathom. They accept the positive effects of a manipulation for a ‘mechanical’ problem – and indeed this is how we came to realize the potential of spinal manipulations for colic. When treating babies for their torticollis we (i.e. parents and therapists) were surprised to see that these newborn were much calmer after the treatment. They were less difficult and slept much better(33). The ‘difficult character’ hypothesis(34) is very attractive for all those not directly concerned with the child, as it offers an irrefutable theory which flatters the parents if and when the situation improves. The minor disadvantage of this theory is that there is no remedy available in these cases. Other causes are then proposed with varying degrees of success.

### Reflux, migraine and other ‘usual suspects’

One problem commonly associated with incessant crying is spitting up, which can reach proportions of vomiting. It is noteworthy that infants do not suffer pain while throwing up due to the fact that the angle of His is not yet established. As in colic the ‘diagnosis’ is more a description of a symptom than a pathophysiological model. The usage of this diagnosis varies in frequency between different countries. While our little patients coming from Belgium or the Netherlands very often come with a medication of antacids and H<sub>2</sub>- blockers, the German babies rarely receive this kind of treatment.

Positional therapy is prescribed (“Do not lay down your child for at least one hour after feeding!”) and the infants are put in an inclined sleeping position. Maybe this helps some of the children, but – needless to say – those infants arriving at our consultation did not improve after these measures.

As we know how much the sequential activation of the neck region depends on a proper functioning of the cervical spine this ‘functional’ diagnosis fits into our etiological model. Interesting enough, the same pediatricians who warn against using ‘forced movements’ of the cervical spine do not have to many inhibitions to prescribe rather powerful medication without solid evidence of a correct diagnosis or a factual base for the efficiency of such a treatment.

Lehtonen et al.(14) mention reflux as a ‘moderate’ etiological component (together with child abuse). The concept of reflux seems to be doubtful when applied to small children. As we know that vomiting does not seem to be hurtful for babies it is more plausible to consider spitting up a symptom of a sensori- motor disturbance on the level of the larynx and not a causal agent.

So, yes, a lot of these crying babies vomit – sometimes copiously; but no, there is no abnormality at the gastro- esophageal junction and no disturbance of their production of gastric acid.

To propose 'infantile migraine'(35) as a reason for colic seems to be as far-fetched and as difficult to verify. The positive reaction to an ensuing medical therapy with a serotonergic receptor antagonist was considered sufficient to confirm this diagnosis.

Specialized neurologists give a list of symptoms commonly associated with colic (Papousek et al., reporting from a Munich center for cry- babies(36)):

- Hypotonia of the trunk
- (unilateral) muscular hypertonia of one extremity
- Shoulder retraction
- Postural asymmetries
- Impaired postural control
- Non-ideal quality of the spontaneous movements
- Tendency of premature and ono-optimal verticalisation

The least one can say is that these symptoms make a functional disorder of the sensori-motor apparatus a prime suspect. So even in publications which do not consider any form of physical therapy appropriate to deal with colic the biomechanical factor appears.

## The KISS (Kinetic Insufficiency of the sub-occipital Spine) model facilitates diagnosis and communication with other care-givers

We knew already since a long time about the complex interdependence between the oro-facial muscles and the upper cervical spine(37). So the obvious next step was to look for factors in the individual case history which might enable us to screen babies with colic for those who profit most of an eventual manual therapy. The results of this enquiry were twofold. In the group of successfully treated cases of colic we found mostly babies with a fixed retroflexion of the head and trunk and feeding problems. This lead to a co-operation pattern with pediatricians concerning babies with incessant crying. The pediatricians check for other reasons, e.g. infections or pylorospasmus, and then for signs of an involvement of functional vertebrogenic factors. This includes the screening of the case history, checking the flexion of the head and the local irritability of the neck and neurological tests(38, 39) for asymmetry. If they have thus reason to believe that a functional problem of the upper cervical spine contributes to the problem of colic the babies are referred to us.

KISS stands for Kinetic Insufficiency of the sub-occipital Spine; this acronym was devised to incorporate all those diverse symptoms we saw and treated (successfully) in small children. The leading symptom is a fixed posture, sometimes a fixed lateroflexion, sometimes more a fixed retroflexion in combination with hypersensitivity of the upper neck area. For practical reasons we distinguish today between KISS I (mainly fixed lateroflexion) and KISS II (primarily fixed retroflexion). Table 1 gives an overview over the typical symptoms which can be found in these two variants.

KISS I: Fixed lateroflexion

- Torticollis

- Unilateral microsomia

- Asymmetry of the skull

- C-Scoliosis of neck & trunk

- Asymmetry of glutaecal area

- Asymmetry of motion of the limbs
- Unilateral retardation of motor development
- KISS II: Fixed retroflexion
- Hyperextension (during sleep)
- (asymmetric) occipital flattening
- Shoulders pulled up
- Fixed supination of the arms
- Cannot lift trunk from ventral position
- orofacial muscular hypotonia
- Breastfeeding difficult on one side

The fixed lateroflexion is the main trigger for paediatricians to ask the help of a specialist in manual therapy. Often other symptoms are more important for the family itself, but these are less obviously connected to a functional vertebrogenic problem. Colic – for example – is often caused by KiSS- related problems but paediatricians and midwives and lactation consultants can only direct the families toward a specialist in MTC if they are aware of this possibility.

In many cases the two types of KiSS overlap. One has to take into account that it is easier for a paediatrician to recognise the laterally fixed posture as pathological. The fixed retroflexion more often than not has to be actively searched for. Often it is best seen in the sleeping position of the children (see Fig. xx). Initially we did not attribute much attention to it and it was only after the parents reported spontaneously that their children slept much calmer and in a markedly more relaxed position that we became aware of the diagnostic importance of a fixed retroflexion of the head.

Through the observations of the parents we got the idea to check systematically if and how much we were able to relieve the sufferings of “cry-babies” (i.e. colic) and their families. Initially quite a few of these small children were referred to us for the treatment of postural asymmetries and the accompanying colic was not mentioned by the parents during our interviews. In the questionnaire we ask the parents to send back to us six weeks after their visit they mentioned that the babies were much calmer and slept better.

## Our data

From our patient data base of 2006 (1277 babies 0-12 months old treated during this year) we chose a random sample of 150 (from a total of 443) of those infants where the main reason for referral was excessive crying. These babies were on average 3m old at the first visit (median: 3.5m, see tab. 1a). All cases were examined based on the questionnaire filled in at the first visit, the case history taken at the initial interview and the clinical observations laid down in the patient data file. These items follow a rather strict pattern while allowing for individual additions. The families were interviewed by phone 3-5 months after the visit and 74 children were seen again, mostly for routine follow-ups. We chose this longer observation period to find out about eventual longer term consequences of these early problems. As other authors remarked, too, an objective assessment of the initial amount of crying is difficult to establish as a quantitative scale for the improvement(4). For a family doctor in close contact with the parents of a cry- baby the relief of the parents is the yardstick. It seems realistic to ask parents to judge the over all improvement of the infant’s situation. We used the commonly applied gradation <excellent – good – satisfactory – (in)sufficient> to grade the answers of the parents interviewed.

A comparison of the sample with the German birth statistics shows that the differences between these two groups are minor and in line with what we found earlier in KISS- children in general(40). We see more boys and slightly more children with a somewhat more eventful birth, be it the use of extraction aids or a cesarean. All these items were not statistically relevant for cases of colic (see table 1.).

Co- symptoms in these cases were comparable to the 'usual suspects' of KISS cases, showing first and foremost signs of a fixed posture and coordination problems in the cervico-pharyngeal area (see Tab.2).

Most parents reported that breastfeeding was impossible or at least more difficult on one side:

- no breastfeeding possible: 74
- more difficult in the left: 21
- more difficult on the right: 34

Only in 15 of the 150 cases was there on problem. 67 parents reported problems in feeding the babies; 83 considered the feeding situation acceptable.

To understand the impact of the treatment we have to keep in mind that more than a third of these babies cried since they were born. The average duration of the colics before treatment was more than 3 months (mean: 13,6 weeks, median: 11,5 weeks). All these babies had received other forms of treatment, starting from handling advice like swaddling, putting the babies in a half- upright sleeping position etc. till physiotherapy etc. In that sense the sample – as all babies seen in our consultation – is biased toward the more difficult cases. Of these babies 56% recovered completely during the first week (27% in the day after treatment). It should be added that there was no additional therapy during this period.

## Treatment: How & how much

Manual therapy (or chiropractics, osteopathy etc.) is a craft, something one learns by doing and something where the by now famous 10.000 hours rule(41-44) applies unreservedly. During the training of a new therapist the teacher can give background, details of the 'how to' and guide the hand of the apprentice. But the difficult part of learning and absorbing whatever it needs takes time – the above mentioned guess is not the worst guess; "it seems that it takes the brain as long [as 10.000 hours] to assimilate all that it needs to know to achieve true mastery"(45).

So, yes, we can give a general idea about the how & how much, but at the end of the day the eventual success of the manipulation depends to a large extent on the proficiency of the individual care- giver.

After several decades of teaching one can state that most beginners overestimate the number of treatments necessary and underestimate the reaction time to a well- placed manipulation.

Time and again we could show that the maximum effect attainable needs three basics:

- no mechanical irritation to the cervical spine in the days before the treatment
- sufficient time afterwards to let the body react and
- the right set-up

The vast majority of the cases of crying babies improved after one or two treatments (>90%, see Tab.3). Those cases where more than two treatments were necessary were more often

cases where additional complications turned up. Minimal interval between two treatments was 5 weeks.

In our telephone interviews we asked the parents to give a judgement about the effect of the treatment. As a comparison we proposed the German school-mark system going from 1 to 6, 1 being excellent, 2 good, 3 satisfactory, 4 average and 5 unsatisfactory. This system is rather coarse but has the advantage that all concerned have a strong opinion about it from their time at the receiving end of these marks. See tab. 4.

Table 5 shows the time when the families saw the onset of the improvement (excellent-good), which was in almost every case rather swift. Only 4 families who were 'very content' and 'content' reported a more slow, gradual improvement which took several days. During the first week 56% (84 of the 150 babies) showed a complete recovery ('very content' or 'content') without any additional therapy. It seems to be acceptable to add those children where the improvement happened during the second week after treatment; this results in a success rate of 69%, roughly in 2/3 of the cases.

Those mothers who were still breastfeeding reported a more relaxed child. The contact between the child's mouth and the breast was closer and less air was swallowed. As the sample was selected with 'crying' as the main symptom it is not astonishing that this symptom got the most attention. Several parents were glad 'to finally be able to hug our baby'. Before treatment the fixed retroflexion of the child made the mother surmise that her baby 'did not want to embrace me'.

The 1/3 – 1/3 – 1/3 rule of thumb was corroborated whenever we examined our patient pool: In 1/3 of the cases we saw a swift and complete recovery, in 1/3 a slightly less impressive but still satisfactory development and in the last third no relevant or only minor changes. This refers to a single treatment with no further accompanying therapy. In combination with other measures the effects are better, albeit impossible to document, as the means used are too diverse.

## Practicalities

Before the baby is seen by the therapist the case history, which was compiled by a secretary is screened to evaluate the need of a plate of the cervical spine. In small children (up to 15 months) a a.p. view is sufficient. The lateral view is of limited meaningfulness, as the babies tend to slump in a sitting position and are very difficult to fixate properly in a lying position. This X-ray plate is examined morphologically and functionally, thus giving a first indication of the postural situation.

After this the baby enters the examination room, where the case history is re-evaluated. Often the parents come up with additional information as they had time to read our questionnaire. We check the items laid down by the assistant, supplementing new details. During this time the baby is on the lap of one of the parents and by observing the reaction of the child we gain additional information about posture, sensory- motor skills and endurance.

After the end of the dialogue with the parents we take the baby and verify by examining the global and segmental movement patterns if the case history, the plate of the cervical spine

and the manual examination fit the same pattern. In babies with colic we expect mostly fixed retroflexion of the head with the lateroflexion component being subordinate.

In examining the babies we first check the tonus and mobility of the extremities. Then we use a selection of neuro- paediatric procedures(38, 39, 46-49)to test the reflex patterns. These tests give a fairly good idea of the maturity of the baby's sensory-motor development and the symmetry of the reactions to the postural tests. One always has to compromise between completeness of the test and the patience of the little patient, which is in most cases very limited. As soon as enough information is assembled to be reasonably sure of the necessity of a treatment we try to make the transition between the diagnostic and the therapeutic phase as smooth as possible.

The technique we use for the manipulation puts the child in front of the therapist, preferably in a lying position. Some children are easier to soothe when half upright as shown in fig. 2. In most cases the impaired range of movement of the o/c junction is the most important problem to tackle. The thrust is moderate(50) and applied in the interval between forced expiration (i.e.: crying) and inspiration. In this split second the baby has to relax and thus only minimal force is needed. Depending on the clinical findings and the functional analysis of the plate of the cervical spine the direction of the impulse is determined.

We do not know of any serious side- effects of this therapy in the babies treated according to our specifications(51) (40.000 treated in our consultation and as much by members of the EWMM<sup>2</sup> in the last 20 years(52)).

## Epilogue

Manual therapy can alleviate the problems of colic for babies and their families in many cases. Careful evaluation, a frontal radiography of the cervical spine and the avoidance of superfluous irritation solves the colic problem in 2/3 of the babies treated. In the hands of an experienced therapist it is an easy and safe procedure with quick and positive results in the vast majority of the cases.

Two problems persist: the inter- professional communication barrier and the fact that this craftsmanship relies on the individual accomplishment. These skills in dealing with patients are being frustrated by the push for institutional standards. Manual therapy uses the 'triad of the intelligent hand' – coordination of hand, eye and brain(43), and like in musicians and other craftsmen "ten thousand hours is a common touchstone for how long it takes to become an expert"(53) – and only such an expert has the success rate.

Since Holt's book more than a hundred years has passed, but his idea about the reasons for excessive crying – "Pain, temper, hunger, illness, and habit"(11) are still mainstream. We can add a functional problem, the biomechanical disorders of the cervical spine, to this list.

The pathogenetic model we propose (KISS) gives us a tool for a better differential diagnosis, a long term prognostic instrument and an effective device to communicate with those involved with our potential patients. If this helps to make Darwin's observation come true, so much the better: "So again when young children are just beginning to cry, an unexpected event will

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<sup>2</sup> EWMM: European Workgroup for Manual Medicine ([www.manmed.org](http://www.manmed.org))

sometimes suddenly turn their crying into laughter, which apparently serves equally well to expend their superfluous nervous energy”(8).

Even the methodologically imperfect studies on chiropractics (see Table 6(54)) for small children show “The evidence suggests that chiropractic has no benefit over placebo in the treatment of infantile colic. However, there is good evidence that taking a colicky infant to a chiropractor will result in fewer reported hours of colic by the parents. In this clinical scenario where the family is under significant strain, where the infant may be at risk of harm and possible long term repercussions, where there are limited alternative effective interventions, and where the mother has confidence in a chiropractor from other experiences, the advice is to seek chiropractic treatment.”(28)

Having realized that less is more we can advise all colleagues to refrain from too frequent interventions. Using only one manipulation considerably increases the slope of the signal we give. This helps to alert the parents to the effect of spinal manipulation. In the observational study presented here the improvement reported by the parents was so clear that it seems to be warranted to emphasize the positive role we manual therapists – be it M.D.s, chiropractors or osteopaths – can play in children with colic.

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