Rapid Induction of Hypnosis
By Finger Elongation: A Brief Communication

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RAPID INDUCTION OF HYPNOSIS BY FINGER ELONGATION:  
A Brief Communication

STEPHAN EITNER, MANFRED WICHMANN,  
ANDREAS SCHLEGEL, AND STEFAN HOLST1,2

Friedrich Alexander University, Erlangen-Nuremberg, Germany

Abstract: This clinical pilot study on finger elongation for induction of hypnosis attempts to determine whether the observed response is a hypnotic phenomenon or a simple physiologic reaction. Sixteen volunteers participated in the 5-phase study, which measured relative and absolute changes in the length of each finger prior to and after each phase. A distinctive elongation was statistically significant for the hypnosis condition. In addition, findings suggest changes in the metacarpus. Further investigation is indicated to shed light on this apparent phenomenon.

Finger elongation is a classic hypnosis induction technique that can be embedded in various hypnotic procedures. Eitner, Wichmann, and Holst (2005a) described the use of finger elongation for rapid induction in dental emergency treatment of patients with a severe gag-reflex. Rapid-induction techniques are often accompanied by clearly visible or noticeable neurophysiologic changes for the patient, such as the arm catalepsy (Wicks, 1982). Finger elongation may also be applied in hypnotherapy as a convincer and suggestibility test (Eitner, Wichmann, & Holst, 2005b). There are no controlled clinical trials on the application of finger-elongation techniques, and its mechanisms are not well understood. However, the necessity for and the effect of techniques for a rapid and efficient induction of hypnosis are described in various studies (Gillett & Coe, 1984; Joubert & Van Os, 1989; Mauer, Burnett, & Ouellette, 1999; Wright & Drummond, 2001). They represent interesting tools for anxious patients in treatment of medical and dental emergencies, since patients with distinctive phobias of medical treatment are a challenge in any kind of medical setting (Fejerdy, Gaspar, Kaan, Balint, & Fabian, 2003; Moore, Brodsgaard, & Abrahamsen, 2002; Noble, 2002). The same patterns can be found in patients with a severe...
gag reflex in dental settings (Boitel, 1984; Conny & Tedesco, 1983a, 1983b). According to Barber’s rapid induction analgesia (RIA; 1977), the technique is applied for pain reduction during dental treatment (Gillett & Coe, 1984) to reduce postsurgical “perceived pain intensity” (PPI), “perceived pain affects” (PPA) in orthopedic hand-surgery patients (Mauer et al., 1999) and in controlling severe pain in the treatment of burn debridement (Patterson, Questad, & de Lateur, 1989). In psychotherapy, rapid induction is of less importance for hypnototherapeutic intervention. Stanton (1981) describes the application of J. Barber’s rapid induction for analgesia and ego-enhancement in the treatment of demoralized patients.

Although there are different methodological approaches of rapid induction in the literature (Barnett, 1992; Hariman, 1980; Matheson & Grehan, 1979; Milne, 1985), rapid induction by means of finger elongation has not been studied. In particular, the mechanisms causing elongation of the fingers have not been investigated, and it is questionable whether finger elongation is a hypnotic phenomenon. Regarding neurophysiologic reactions, glove anesthesia as described by Alladin (1988) is a similar approach in the treatment of severe chronic migraine. The arm-catalepsy rapid induction technique by Wicks (1982) and the 6-minute hypnotic induction and measurement scale of the Stanford Hypnotic Arm Levitation Induction and Test (SHALIT; Hilgard, Crawford, & Wert, 1979) are also related to finger elongation.

The current study attempts to determine whether the observed responses of finger elongation are hypnotic phenomena or a physiologic reaction irrespective of its application as a (rapid) induction technique, convincer, or suggestibility test. In addition, anatomical and physiological rationales of finger elongation are discussed. It was hypothesized that:

- Finger elongation is a hypnotic phenomenon.
- The position of the hand has an impact on the growth of the fingers.
- All anatomical structures such as muscles, tendons, and joints cause finger elongation.

The same protocol for finger elongation as described by Eitner, Wichmann, and Holst (2005a) in dental emergency treatment was applied in the current investigation.

- The patient is instructed about the proceedings.
- The left and right hand are put together with the opposing fingers having the same length (Figure 1, white line). A connecting line is drawn from the thenar eminence (at the base of the thumb) of the left hand to the right. This allows reproducible positioning (Figure 1, white arrows).
First, the practitioner asks the patient to close his eyes and then implements a short hypnotalk, a conversation between patient and therapist introducing hypnosis with metaphors, pictures, and/or stories. Next the practitioner uses breath pacing, in which he or she balances the patient’s breathing rate and depth with his or her own breath and speech rhythms, thereby slowing the patient’s breathing rate. Finally, the practitioner continues to influence the patient’s breathing rate with breath leading, a continuation of the therapist influencing the patient’s rate of breathing.

The patient raises the hand where the fingers are supposed to grow. The back of the other hand is placed on the thigh (Figure 2).

The therapist continues breath leading and bringing the patient’s focus to the fingers of the raised hand. The patient is instructed to let the fingers grow. His attention must focus on possible physiologic reactions such as prickling, temperature, and sensibility changes.

After 5 to 8 minutes, the patient opens his eyes to compare the length of his fingers. Hands are put together, and the black marks have to form a connecting line (Figure 3, white arrows).

The resultant effect can be seen in the length of the fingertips (Figure 3, white lines).

With the perception that the fingers did grow, the patient closes his eyes again to reach an even deeper state of relaxation.

The protocol can be applied universally in any given situation where there is a necessity for induction or rapid induction of hypnosis.

Figure 1. Finger length before rapid induction is initiated. Marks on the right and left thenar form a straight line.
METHOD

The study protocol on “Evaluation of neurophysiologic self-control of finger length” was approved by the ethical committee of Friedrich Alexander University (FAU) and each participant gave his written consent after being informed about the study. Twenty randomly selected subjects who were interested in alternative therapeutic approaches were assigned to fictitious test and control groups. They were told that in the test group finger elongation was intended in each phase, while the finger length should stay stable or decrease in the control group. None of the participants was informed about affiliation to a particular group, that the assignment to a group was fictitious, that all patients would perform an identical study protocol, or that it was a hypnosis study. The participants then attended the control, instruction-left, and instruction-right phases. Prior to the hypnosis-left phase test, participants were informed about further proceedings. Both succeeding phases,
hypnosis-left and hypnosis-right, determined finger length under hypnosis. It was the patient’s decision whether or not to continue the study. For further participation, every subject had to give a second written consent. Medical and special hypnotic history was obtained. Only subjects without either prior hypnosis experience or scientific expertise in the area were eligible to participate. Further exclusion criteria were being under age 18 and any psychological/psychiatric disorders according to ICD 10 (International Classification of Diseases by the World Health Organization). Subjects with a serious injury (fracture, deep cuts, injuries of the tendons) of a single or both hands and arms were also excluded from the study. Sixteen of 20 randomly selected test subjects (mean age, 30 years) were included in the clinical pilot study. The cohort consisted of 13 women (mean age, 29 years) and 3 men (mean age, 33 years). One subject withdrew his consent when he was informed that hypnosis would be used. One female was excluded from the study because of psychotherapeutic treatment. Two males were excluded because of hand or arm injury within the last year.

Data Acquisition

For relative length measurements of the fingers, felt pen markings were placed on the left and right thenar. The marks on both hands formed a straight line and the fingertips for each finger-pair had to be on the same level (Figure 1). After each experimental phase, the line on
the left thenar had to form a straight line with the line on the right thenar. Changes in the length of the fingers were observed at the fingertips. Difference values between lengths were recorded as a positive millimeter value of the distance from C to D between the fingertips of each pair of corresponding fingers (Figure 3). At the beginning and the end of each experimental phase, digital photography was used for documentation in a standardized manner.

For absolute length, measurement of all fingers, proximal joints, and fingertips were also marked (Figure 4, A and B). A flat-bed scanner (HP Scanjet 3970, Hewlett-Packard Germany, Böblingen) was used for visual acquisition of each finger length at the beginning and the end of an experimental phase. Length changes were recorded in millimeters as a difference between the absolute length value of a single finger of the distance from A to B from the beginning to the end of each phase. An increase of length was acquired with a positive value, a decrease with a negative.

The study design comprised five phases: control, instruction-left, instruction-right, hypnosis-left, and hypnosis-right. The experimental set-up was in accordance with the finger-elongation protocol for rapid induction. In contrast to the information given to the participants, the phases, experimental set-up, and instructions for the subjects were the same for both the test and control group. None of the participants was
informed whether the finger length should increase, decrease, or stay stable in the following trial. The hypnosis-left phase corresponded to the finger-elongation technique by Eitner et al. (2005a). The control phase was the baseline, while instruction-left, instruction-right, and hypnosis-right phases were comparative.

**Phases**

The following instructions ("a, b, c") were given to the subjects in the different phases:

**Control:**

(a) Raise left arm  
(b) Put right arm on thigh  
(c) No further instructions

**Instruction-Left:**

(a) Raise left arm  
(b) Put right arm on thigh  
(c) Nonhypnotic verbal instruction: “Please let the fingers of the raised hand grow!”

**Instruction-Right:**

(a) Raise left arm  
(b) Put right arm on thigh  
(c) Nonhypnotic verbal instruction: “Please let the fingers of the horizontal hand grow!”

**Hypnosis-Left:**

(a) Raise left arm  
(b) Put right arm on thigh  
(c) Trance induction and simultaneous suggestion: “Please let the fingers of the raised hand grow!”

**Hypnosis-Right:**

(a) Raise left arm  
(b) Put right arm on thigh  
(c) Trance induction and simultaneous suggestion: “Please let the fingers of the horizontal hand grow!”

Each phase lasted 10 minutes. In between each phase, a 10-minute waiting period was maintained and care was taken that finger lengths of the left and right hand were the same before each phase. This sequence was mandatory for all patients. Every subject was committed to keep his study profile confidential.
Statistical Analysis

In addition to descriptive statistics, the Mann-Whitney *U* test was used to compare scores between groups (e.g., length changes between the right hand in hypnosis-right and the left hand in hypnosis-left).

The Wilcoxon test was applied as a nonparametric test of two associated samples.

The level of significance was set at 5% (*p* = .05). Bonferroni correction was used to test the significance for multiple comparisons.

RESULTS

Changes in finger lengths are shown in Table 1 (relative) and Table 2 (absolute). In the control phase, the median and mean difference values showed no significant length changes in relative and absolute measurements.

Results of the instruction-left phase revealed no significant changes compared to the control phase. Fingers of the resting hand did not increase in length, whereas the finger length of the raised hand increased an average of 0.85 mm/0.44 mm (relative/absolute mean values for all fingers). The greatest length changes were observed on the left middle finger (mean: 1.06 mm relative/0.44 mm absolute).

In the instruction-right phase, measurements revealed slight length changes (mean values for all fingers: 0.83 mm/0.42 mm) of the resting hand, while the finger lengths of the raised hand remained constant. The middle finger again showed a pronounced increase in length.

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In the hypnosis-left phase, relative and absolute length changes (Figure 5) were significant (mean values for all fingers: 2.61 mm/0.93 mm). Significant finger elongation was observed for the middle finger of the raised left hand (mean: 3.06 mm/1.5 mm). Compared to the control phase, length increases in the hypnosis-left phase were statistically significant at the second, third, and fourth left fingers \( (p = .001, .003, .005) \). The same was measured for relative changes of the second through fourth left fingers \( (p = .001, .001, \text{and} .007) \).

In the hypnosis-right phase, finger length of the resting hand increased 2.58 mm relative and 1.69 mm absolute (mean values for all fingers) (Figure 6). The middle finger length increased especially (mean: 3.31 mm/2.0 mm). Relative/absolute finger elongations of the second through fifth fingers were significant, \( p = .001/.003 \) (second right finger), \( .000/.001 \) (third right finger), \( .001/.010 \) (fourth right finger) and \( .008/[.014] \) (fifth right finger).

Regarding the mean length changes in the hypnosis-left and hypnosis-right phases, a decrease of finger length of the second and third fingers on the nonhypnotic hand was clearly detectable. Direct comparison of the resting right hand and fingers in the hypnosis-right

![Figure 5. Absolute elongation of fingers in phase “HYPNOSIS-LEFT.” Difference values (in millimeters) were calculated by comparison of length values at the beginning and the end of a phase.](image-url)
phase with the raised left hand and fingers in the hypnosis-left phase showed that under suggestion the finger length of the resting hand increased slightly more than did the raised hand. When suggested in hypnosis, finger elongation was significantly increased compared to nonhypnotic request only. Finger lengths increased in the hypnosis-right phase for the second \( (p = .002) \), third \( (p = .000) \), and fifth \( (p = .006) \) right fingers significantly more than in the instruction-right phase (see Table 2 for absolute values). Finger length increased in the hypnosis-left phase for the second \( (p = .003) \), third \( (p = .007) \) left fingers significantly more than in the instruction-left phase (see Table 2 for absolute values). Correlation whether subjects were left- or right-handed was not possible. The same applies to an attempted evaluation of suggestibility of patients.

**DISCUSSION**

Because studies on finger elongation for induction of hypnosis do not exist, and certainly neurophysiologic changes have not been previously investigated, the present report must be considered a pilot study. The experimental phases of the rapid induction by finger elongation were based on the study design introduced by Eitner et al.
(2005a) because of a lack of comparable study designs in the literature. The suggestion techniques we used are similar to those used by Alladin (1988) for glove anesthesia in the physiological changes and the corresponding induction techniques for a raised hand.

The study profile evaluated methodological and chronological relationships of a possible hypnotic effect on finger elongation. Therefore, each experimental phase lasted 10 minutes in accordance with the maximum time needed for the finger-elongation technique for hypnotic induction. In each phase, combinations of hypnotic and nonhypnotic instructions for both hands investigated methodological and physiologic relationships. To exclude unwanted, random, or premature learning experience, participants were not allowed to have any information on the purpose of the study, prior experiences with hypnosis, or to inform other participants about the study protocol. Until the hypnosis-left phase, the subjects did not know that they took part in a study on the effects of hypnosis. Thus, expectations and manipulations of the results by the subjects were minimized. Also, a withholding effort during the nonhypnotic trials anticipating that hypnotic trials would follow could be excluded. The sequence of each experimental phase was mandatory for each participant. A different study design or change in the sequence of phases with the hypnosis-left phase at the beginning would have caused incorrect values with self-hypnosis and auto-suggestions in nonhypnotic phases. Participants did not know whether finger length should increase, decrease, or stay stable in the following trial. This procedure prevented practice, stretching, or flex effects. Since neurophysiologic changes could be examined under different parameters in the same subject, additional control groups were not necessary. The impact of different degrees of suggestibility, experience with relaxation, and approaching hypnosis between different members of a test and control groups were eliminated. Subjects with a serious hand or arm injury were excluded because of anatomical or pathological limitations that may have influenced finger elongation. Hypnosis was administered by a dentist. To minimize therapeutic and forensic risks, subjects with a psychological/psychiatric disorder according to ICD 10 were excluded. In Germany, dentists cannot treat psychological or psychiatric disorders due to their level of expertise and in violation of the law. Methodological errors of this pilot study were minimized by a strict study protocol and evaluation of recurrent baseline measures.

For precise measurement, relative and absolute length changes were compared. The relative length measurements were not able to determine whether a finger of a corresponding finger pair elongated or shortened. Therefore, absolute length measurements were included in the study protocol. The relative length measurement was used to demonstrate the visible effect of hypnosis and to detect possible changes
apart from the fingers in the metacarpus area. Because of a missing normal distribution in the 16 subjects, the median should be used instead of mean value in statistical analysis. The mean values are listed in Tables 1 and 2 for illustration of minimal changes or decrease in length.

The control phase was considered the baseline without detectable length changes. The instruction-left phase demonstrated that verbal/nonhypnotic requests led to a minimal increase in finger length. This phenomenon can be explained by a person’s cognitive concentration processes. If the instruction-left and instruction-right phases were compared, there was no significant difference detectable. If suggestive techniques are applied, finger elongation is significantly increased, compared to the control or verbal/nonhypnotic request phases.

Suggestions directed at the resting hand led only to a minimal additional increase of finger length compared to the raised hand. Therefore, the position of the hand is of secondary importance. In fact, raising a hand, as described in the protocol of rapid induction techniques, led to a minimal reduced elongation compared to a resting hand but may initiate a therapeutic arm levitation as described by Young (1995) and Wiggins and Brown (1968).

The influence of a person’s handedness (left- or right-handed) could not be assessed. Only one participant was left-handed. The same applies to suggestibility according to the medical history.

The physiologic reason for finger elongation is due to relaxation of muscles, joints, and tendons. If muscle and tendon tone decrease, the joint distance in each finger joint increases within physiologic limits. The measurable length change depends on the number of succeeding joints measured. Therefore, water-insoluble marks were applied on the skin proximal to the carpometacarpal joints I–IV. This allowed length measurements from the carpometacarpal joints to the fingertip. Included are the metacarpophalangeal joints as well as interphalangeal joints of the thumb and of each finger. The freedom of movement of the metacarpophalangeal joints II–IV is restricted by its fibrous articular capsule, which is supported by the palmar aponeurosis. The collateral ligaments further restrict movement. The base and the head of the involved bones are connected by the deep transverse metacarpal ligament. The form of the metacarpophalangeal joint of the thumb is essentially similar to that of the fingers. However, it does differ from these joints in certain aspects. For example, the fibrous capsule contains medial and lateral sesamoid bones. The measured length changes are related to the above-mentioned structures. The same can be said for the involved tendons and muscles that are primarily localized on the forearm. Extensor of the II–IV finger is the extensor digitorum with its tendon and the extensor pollicis longus and brevis with their tendons for the thumb. Involved flexors are the flexor digitorum superficialis and
profunda with their tendons. The thumb is controlled by the flexor pollicis longus and brevis (Moore, 1985). The middle finger elongated most, followed by the index finger and the ring finger. This is probably due to the size of the fingers and the congruent joint capsules, which result in a greater length change. Joint distance increases under rapid induction, resulting in an absolute change of finger length. Results of relative measurements varied considerably, which could not be verified by the absolute measurements. This can be explained by variances (length changes) in the metacarpus, the shrinking of the fingers on the nonhypnotic hand, or putting the hands together incorrectly. The latter explanation is rather unlikely, since test subjects did not know how to place the hands for measurement to achieve longer fingers.

Additional measurements in 2 participants confirm the hypothesis that length changes can also be observed in the metacarpus. Furthermore, the position of the muscles responsible for flexion and extension of the fingers and the power transmission demonstrate incipient changes of hand dimension. This hypothesis is currently under investigation.

Induction of hypnosis through finger elongation intensifies a physiological process. The same basic principles can be assumed for glove anesthesia (Alladin, 1988), which has not been investigated in the literature thus far. A major drawback of glove anesthesia is that it can only be measured if a painful stimulus is applied. However, pain is a subjective perception and initiating a painful stimulus might be contraindicated in succeeding therapeutic measures. Dental phobic patients especially try to evade any pain sensation, as stated by Willemsen in a literature review (Willemsen, 2003). However successful, glove anesthesia has a considerable impact on hypnosis. The same can be stated for the arm levitation described by Hariman (1993) and the rapid induction through finger elongation described in the present study. The described technique can easily be applied by an experienced hypnotherapist (such as dentists, psychologists, doctors), and results can be quickly assessed by the patient (objectively). The “surreal” hypnosis becomes physiologically tangible. Positive aspects for the patient are subjective perceptions in his fingers (coolness, warmth, prickling), which allow the application of the technique as a suggestibility test or convincer. Hariman described the “conviner-competency” of physiological changes from hypnosis regarding the arm levitation (Hariman, 1982, 1985). Just like other methods for rapid induction of hypnosis, as mentioned by Finkelstein (2003) for dental settings, the finger-elongation technique can be applied not only in emergency dental treatment but also as preparation for long-term therapeutic measures.

Like other rapid induction techniques, the rapid induction by finger elongation benefits from its visible and noticeable effect. This prepares dental patients for further dental treatments. The present study suggests the effect of finger elongation in hypnosis to be a hypnotic phenomenon
that is comparable to the well documented neurophysiologic impact of hypnosis on blood pressure (Mount, 1978) and heart rate (Talan, Fel’berbaum, & Chernigovskii, 1978). Timney and Barber (1969) found significant changes of mouth temperature and Bongartz (1988) a short-term influence on the quantity of leukocytes during hypnosis.

CONCLUSION

The present pilot study demonstrates the hypnotic phenomenon of finger elongation. Initiation of hypnosis accelerates and intensifies physiologic reactions. This results in a significant elongation of the fingers and probably the hand, which is directly measurable for the patient and means that the effect of hypnosis is measurable and comprehensible. Only a minor expenditure of time (maximum 10 minutes) is necessary for an efficient and firm rapid induction in emergency cases. The technique may also be applied as a convincer, a suggestibility test, and initiation of long-term therapeutic measures. The positioning of the hand has no significant influence on the result. Growth of the fingers does not seem to be limited to the fingers and joints. Comparison of absolute and relative length supports the theory of changes in the metacarpus as well as the position of the major extensors and flexors in the forearm. Further investigations are necessary to confirm these findings.

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**Induction d’hypnose rapide par “Allongement du doigt”: une contribution brève**

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**Inducción rápida de hipnosis mediante la “elongación de dedo”: Una comunicación breve**

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Resumen: Este estudio clínico piloto sobre la elongación de dedo para la inducción de hipnosis intenta determinar si la respuesta observada es un fenómeno hipnótico o una simple reacción fisiológica. Dieciséis voluntarios participaron en las cinco fases del estudio que midió cambios absolutos y
relativos en la longitud de cada dedo con anterioridad a y después de cada ciclo (fase). Un claro alargamiento fue estadísticamente significativo en la condición de hipnosis. Además, los hallazgos sugieren cambios en el metacarpo. Se necesita más investigación para aclarar este fenómeno aparente

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