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## Hypnotherapy for Esophageal Disorders

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### Abstract

Hypnotherapy is an evidence based intervention for the treatment of functional bowel disorders, particularly irritable bowel syndrome. While similar in pathophysiology, less is known about the utility of hypnotherapy in the upper gastrointestinal tract. Esophageal disorders, most of which are functional in nature, cause painful and uncomfortable symptoms that impact patient quality of life and are difficult to treat from a medical perspective. After a thorough medical workup and a failed trial of proton pump inhibitor therapy, options for treatment are significantly limited. While the pathophysiology is likely multifactorial, two critical factors are believed to drive esophageal symptoms—visceral hypersensitivity and symptom hypervigilance. The goal of esophageal directed hypnotherapy is to promote a deep state of relaxation with focused attention allowing the patient to learn to modulate physiological sensations and symptoms that are not easily addressed with conventional medical intervention. Currently, the use of hypnosis is suitable for dysphagia, globus, functional chest pain/non-cardiac chest pain, dyspepsia, and functional heartburn. In this article the authors will provide a rationale for the use of hypnosis in these disorders, presenting the science whenever available, describing their approach with these patients, and sharing a case study representing a successful outcome.

### Keywords

behavioral medicine; esophageal disorders; gastroesophageal reflux disease; heartburn; hypnosis

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Once a primary care doctor or gastroenterologist has ruled out esophageal cancer or other malignant causes for a patient's chest pain, difficulty swallowing, or heartburn, it is probably wise to consult a health psychologist or clinical social worker for a behavioral intervention. The authors of this article are gastrointestinal (GI) health psychologists fully integrated within two academic GI divisions in the Midwest, that have successfully implemented an esophageal-directed hypnotherapy program for difficult to treat upper GI disorders (Riehl, Kinsinger, Kahrilas, Pandolfino, & Keefer, 2014). Below they describe their program, including its rationale, structure, and utility.

## Background and Rationale for Esophageal-Directed Hypnotherapy

Much of the science behind the use of hypnotherapy (HYP) for digestive health is in the area of irritable bowel syndrome (IBS). With a stable number needed to treat of 2.5, meaning that for every 2.5 patients treated, 1 experiences adequate relief of symptoms (Ford et al., 2014; Ford, Talley, Schoenfeld, Quigley, & Moayyedi, 2009), gut-directed HYP has been shown to reduce abdominal pain, improve bowel patterns and reduce bloating (Miller & Whorwell, 2009; Whorwell, 1990; 2008), normalize rectal sensitivity thresholds (Lea et al., 2003; Palsson, 2010), decrease somatization and visceral anxiety (Palsson & Whitehead, 2002), and reduce catastrophizing and unhelpful thinking about symptoms (Gonsalkorale, Toner, & Whorwell, 2004). Further, the benefits of HYP have been shown to last up to 5 years (Gonsalkorale, Miller, Afzal, & Whorwell, 2003) and have demonstrated cost-effectiveness in comparison to IBS medication (Gonsalkorale, Houghton, & Whorwell, 2002; Houghton, Heyman, & Whorwell, 1996).

There are fewer studies examining the use and impact of hypnosis or other hypnotically assisted relaxation techniques for the management of disorders of the esophagus, but of the studies published, as well as reports of clinical experience, when clinically appropriate, these forms of treatment are accepted and beneficial (Palsson, 2010). Hypnotherapy has demonstrated efficacy in small trials of functional dyspepsia (Calvert, Houghton, Cooper, Morris, & Whorwell, 2002), non-cardiac chest pain (Jones, Cooper, Miller, Brooks, & Whorwell, 2006; Miller, Jones, & Whorwell, 2007; Palsson & Whitehead, 2006; Whorwell, 1990) and from our own group, globus sensation (Kiebles, Kwiatek, Pandolfino, Kahrilas, & Keefer, 2010) and functional heartburn (Riehl, Pandolfino, Palsson, & Keefer, 2015). Prior to the availability of proton pump inhibitors (PPIs), there were also a handful of studies that focused on hypnosis in acid peptic disorders with modest effects in modulating gastric acid secretion (Button et al., 1989) and gastric emptying time (Chiarioni, Vantini, De Iorio, & Benini, 2006). Hypnosis has also been shown to modulate reflux symptoms by reducing anxiety, body vigilance and visceral sensitivity (Scarinci, McDonald-Haile, Bradley, & Richter, 1994).

While the mechanisms of HYP in the esophagus are unknown, two related processes are believed to underlie the majority of refractory esophageal symptoms—esophageal hypersensitivity and esophageal hypervigilance. Interestingly, both of these are theoretically amenable to HYP.

Esophageal hypersensitivity is a *physiological* process that occurs in certain individuals in response to normal esophageal stimulation (mechanical or chemical). It is readily demonstrated among patients with functional gastrointestinal disorders (FGIDs) as increased sensitivity during normal digestive processes and a decreased pain threshold to balloon distention tests in the rectum or esophagus (Munakata et al., 1997; Nasr, Attaluri, Hashmi, Gregersen, & Rao, 2010). Thus, even in cases where a patient has abnormal levels of acid exposure treated adequately with medications, visceral hypersensitivity might still drive symptoms (e.g., the presence of normal acid becomes painful).

Esophageal hypervigilance (EHv) on the other hand is a *psychological process* which develops through operant conditioning. Consider an individual with some history of esophageal symptoms or injury who becomes hypervigilant around early cue detection of future esophageal discomfort. This hypervigilance is *out of proportion* to prior symptom experience but is nevertheless reinforced when symptoms do not occur as the patient predicted. Instead of experiencing relief, the patient falsely attributes the lack of symptoms to his/her careful attempt to avoid their perceived triggers. This accidental reinforcement increases the likelihood of continued hypervigilance, which demands sustained awareness of environmental (e.g., a specific food) and interoceptive (e.g., feeling hungry, aroused) cues. Cognitively, these cues become synonymous with the esophageal symptom itself, irrespective of pathophysiology. Hypervigilance may escalate if symptoms are predicted to occur in a new context. Paradoxically, context-dependent learning increases the probability of esophageal sensations during such situations, in turn becoming a “self-fulfilling prophecy” for the experience of esophageal symptoms. High EHv can result in behavioral avoidance, increased anxiety, restricted coping or helplessness, further exacerbating symptoms and social isolation. Notably, EHv is distinct from general anxiety and other psychological disorders in that it is specific to esophageal sensations and does not typically cross into other life domains (Keefer, Sayuk, Bratten, Rahimi, & Jones, 2008).

### Approach and Uses

Esophageal problems that commonly present in a behavioral health clinic which are suitable for hypnosis are dyspepsia, globus sensation (lump in throat), heartburn, non-cardiac chest pain, and dysphagia (difficulty swallowing). Visual imagery around esophageal physiology and metaphoric imagery related to the transformation of bothersome esophageal symptoms are readily accepted by patients (Kiebles et al., 2010; Riehl et al., 2015). When it comes to constructing a treatment plan for patients who will likely benefit from esophageal-directed hypnotherapy, researchers at Northwestern University have utilized structured, scripted protocols for most of these conditions. Our protocols have all been developed through adaptations of scripts used for IBS and inflammatory bowel diseases which have been previously published by the author (LK) and colleagues (Keefer et al., 2013; Palsson, 2006) (Table 1).

### Clinical Evaluation

Before initiating esophageal-directed hypnotherapy, a thorough evaluation should be completed by a qualified medical provider which completely documents the medical history and rules out other organic medical causes of the patient’s symptoms. In addition to an upper endoscopy, the medical workup may include reflux monitoring studies (prolonged telemetry capsule pH monitoring (Bravo™) and 24-h impedance pH testing) as well as esophageal manometry (Kumar & Katz, 2013).

### Psychoeducation and Engaging the Patient

Initial psychoeducation about the nature of their medical condition should always be the first step in treatment. Our patients are told that it is very common to experience significant emotional and physical distress in association with various aspects of their esophageal

symptom presentation (pain, fear of choking, loss of control, anxiety). Treatment goals are tailored to aid patients in developing strategies that improve coping and symptom management. Given the sensitive location of the patient's discomfort and symptomology, patients are often fearful that they will experience difficulty with breathing or choking. Giving patients a thorough description of their diagnosis prior to beginning hypnosis treatment can aid with building rapport, helping patients to feel safe, and allows them the opportunity to gain insight into the functional aspects of their symptoms.

The treatment provider must have adequate knowledge of the presenting gastroesophageal complaint and provide detailed information and education about the nature of esophageal hypersensitivity and hypervigilance and the role these play in the patient's symptom experience. Giving patients a brief background on the development of the use of hypnosis for their diagnosis can begin with a description of hypnosis used for the FGID, IBS, and how hypnosis fits within a class of effective "brain-gut" therapies.

### **General Structure**

Once the patient has completed a comprehensive initial consultation with a health psychologist or practitioner expert in the use of hypnosis, patients deemed appropriate for treatment may attend five to seven weekly or bi-weekly sessions. Each hypnosis session is about 20–25 minutes in duration. Patients have the option to sit in a comfortable chair with the lights dimmed and minimal background distractions. Hypnosis is induced by an eye closure, followed by progressive muscle relaxation and a deepening technique (image of staircase, elevator, cloud, etc). Next, esophageal focused suggestions related to the function of peristalsis, motility, and esophageal sensitivity are introduced and repeated with corresponding images and metaphoric transformations focused on normalizing the esophageal functioning. Between in-person sessions, patients are provided a CD with a guided hypnosis exercise and instructed to listen on a daily basis as homework throughout the duration of the hypnosis protocol. Weekly progress can be assessed by having patients keep symptom logs to be compared throughout the treatment and assessed for improvement. The symptom logs can be collected weekly and discussed with the patient in session. The symptom log can also be used to track date and time that patients completed their home practice which can aid with treatment compliance. Patients are given the opportunity to discuss their experience with home practice while in-person and suggestions for improved self-hypnosis practice will be provided. The individual is instructed to practice in a quiet, comfortable location in their home at a time with little distraction so they can focus on the words throughout the practice. At the conclusion of the treatment protocol, patients will no longer need to listen to the home practice.

### **Condition-Specific Applications**

#### **Dyspepsia**

Dyspepsia is a one of the most common GI conditions seen in an outpatient GI clinic with variable prevalence (Tack & Talley, 2013). The symptoms of dyspepsia can significantly impact a patient's quality of life and include a variety of painful or uncomfortable symptoms located throughout the epigastric region. Postprandial fullness (uncomfortable sensation that

food sits in the stomach after a meal), early satiety (feeling full quickly), upper abdominal bloating, epigastric pain or burning, belching, nausea, vomiting, or unintentional weight loss in the absence of underlying structural abnormality would warrant a diagnosis of dyspepsia (Tack & Talley, 2013). Rome III introduced two subgroups of functional dyspepsia which included postprandial distress syndrome (PDS) and epigastric pain syndrome (EPS) (Drossman, 2006). PDS patients are likely to present with postprandial fullness and early satiety while patients with EPS report symptomatology inclusive of epigastric pain and/or burning (Tack & Talley, 2013). We now see growing evidence highlighting the symptom overlap among patients with functional dyspepsia, IBS, and gastroesophageal reflux disease (GERD) with one study indicating overlap of two or all three diagnoses in 6.5% of the study population (Rasmussen et al., 2015). Early studies in the successful use of hypnosis for dyspepsia were developed by the Manchester group who pioneered the use of hypnosis for IBS. In a randomized control trial, hypnosis proved beneficial in improving patient quality of life and long-term symptom management when compared to supportive therapy plus placebo medication or medical treatment as usual (Calvert et al., 2002).

### **Globus Sensation**

A patient with globus may present stating, “It feels like I have a golf ball stuck in my throat that I can’t swallow down.” As described by the Rome III diagnostic criteria, globus sensation may be intermittent or persistent and a non-painful sensation of a lump or foreign body in the throat which occurs between meals in the absence of dysphagia, GERD, or esophageal motility disorders (Kahrilas & Smout, 2010). Given an etiology that may originally stem from GERD, a trial of PPI medication is recommended. However, researchers investigating alternative management strategies for patients who have not responded to PPI therapy have also found hypnosis beneficial (Kahrilas, Boeckstaens, & Smout, 2013; Kiebles et al., 2010). Kiebles and colleagues (2010) implemented a 7-session scripted protocol in an open-label study to assess the acceptability of hypnotically assisted relaxation (HAR) to decrease the globus sensation and upper esophageal sphincter (UES) pressure. While the study was small, it spearheaded exciting and important work in the treatment of globus that had not been done before. Substantial improvement in the reduction of symptoms was reported, while UES function remained unaffected suggesting that hypnosis is an acceptable treatment for this aggravating disorder (Kiebles et al., 2010).

### **Gastroesophageal Reflux and Heartburn**

The Rome III diagnostic criteria for functional heartburn characterizes retrosternal burning, discomfort or pain, the absence of GERD as the cause of these symptoms, and the absence of histopathology-based motility disorders. Treatment has tended to focus on dietary changes by the avoidance of fatty, spicy, or acidic based foods, however an overly restrictive diet is not recommended as nutritional needs should not be disregarded (Kumar & Katz, 2013). Without strong empirical support, but based on the pathophysiology associated with esophageal hypersensitivity, selective serotonin reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs), commonly used for FGID pain modulation have been prescribed (Clouse, Lustman, Eckert, Ferney, & Griffith, 1987; Viazis et al., 2012). Esophageal hypersensitivity and its psychological counterpart, EHv influence the functional heartburn symptom experience, and may also drive symptoms in GERD. In a small pilot study by the

authors, HYP was recently established as a preferred intervention for functional heartburn (Riehl et al., 2015). As with other work in the treatment of functional GI disorders (Palsson & Whitehead, 2013) there were consistent and significant changes in heartburn symptoms, visceral anxiety and quality of life, and a trend for improvement in catastrophizing for patients who enrolled in a 7-session esophageal-directed HYP protocol (Riehl et al., 2015).

### Functional Chest Pain/Non-Cardiac Chest Pain

In addition to the previously mentioned workup with a gastroenterologist, patients who present with functional chest pain or non-cardiac chest pain (FCP/NCCP) require a cardiac workup to rule out cardiac complications. Often, these patients have presented at emergency rooms with fear of being in the midst of a heart attack or panic attack. These patients are frequently high healthcare utilizers and a negative medical workup may not be enough to convince them that their symptom presentation is benign. This makes FCP/NCCP a disorder that is difficult to treat from a purely medical perspective. Commonly diagnosed with no clear etiology, patients describe a radiating pain throughout the neck, mid-chest, and mid-back with a debilitating pressure sensation not of burning quality (Nasr et al., 2010). Similarly to its role in functional heartburn, esophageal hypensensitivity is likely at play in the presentation of symptoms (Miwa et al., 2010; Nasr et al., 2010; Rao, Hayek, & Summers, 2001), therefore pain modulators such as TCAs, SSRIs, SNRIs have been prescribed, but based on potential side effects should be cautiously used (Atluri, Chandar, Fass, & Falck-Ytter, 2015; Clouse et al., 1987). There have been promising outcomes in terms of psychological treatment for FCP/NCCP where cognitive behavioral therapy (CBT) (Klimes, Mayou, Pearce, Coles, & Fagg, 1990) and HYP proved superior to placebo controls in decreasing symptoms. Jones et al. (2006) implemented a placebo-controlled study which showed HYP resulted in a significant reduction in pain intensity, decreased medication use, and overall improvement in patient well-being when compared to supportive care with placebo medication. Despite the limitations of generalizability due to the small sample size ( $n = 28$ ; 15 in HYP), a non-medication treatment involving 12 sessions of HYP emerged as a treatment to explore further based on these excellent preliminary findings (Jones et al., 2006).

### Dysphagia

Functional dysphagia is another esophageal diagnosis of exclusion. In the absence of GERD or another organic medical cause, patients may describe the sensation of liquid or solid food “sticking” in the esophageal region with swallowing or overall difficulty with swallowing (Kahrilas & Smout, 2010). It is necessary to rule out organic medical conditions such as eosinophilic esophagitis (EoE) prior to treating the patient for functional dysphagia as EoE may cause food impaction, esophageal narrowing, or strictures which could explain dysphagia. One incident of dysphagia can be enough to cause food aversion, fear of choking, and anxiety related to the experience happening again. Behavioral modifications (i.e., chew food well, eat slowly, drink throughout meal) are recommended as a first course of action in the treatment of dysphagia, while dilation, botulin toxin injection, or smooth muscle relaxants may also provide symptom relief (Lind, 2003). Published literature on the use of hypnosis for dysphagia is limited, however one significant case study by Kopel and Quinn (1996) discussed their work. A 60-year-old gentleman with cancer developed dysphagia and



would require dilation to manage esophageal strictures. It was noted that the patient was a mildly anxious man, but no significant psychological history. Over the course of 8 HYP sessions, imagery and suggestions centered on the experience of eating to aid with swallowing and decrease anticipatory emotional arousal. Successful treatment allowed the patient to begin swallowing liquid and saliva, eat small amounts of solid food and undergo dilation and other medically necessary treatment (Kopel & Quinn, 1996). The authors of this article (MR and LK) have also used esophageal-directed HYP for functional dysphagia and one such case example will be discussed to reflect the effectiveness of this form of behavioral treatment.

### Case Example: HYP for Dysphagia

To highlight the manner in which clinical hypnosis provides treatment benefits that at times could not be provided from a medical standpoint, a case study with a 32-year-old gentleman is presented. A single episode food impaction while eating a steak dinner, followed by a trip to the emergency department (ED), precipitated the onset of functional dysphagia. At the ED he received a GI workup, was treated with medication, and then prescribed PPI therapy to begin daily. His initial symptoms resolved, but he began to feel anxious about eating and over the course of 3 months post-impaction, he developed dysphagia for solid foods, belching, and regurgitation. At one point, EoE was suspected and a gastroenterologist prescribed a course of steroids. The patient's symptoms worsened and he began taking alprazolam as needed to aid with symptom specific anxiety. The patient was then referred to our tertiary outpatient clinic and evaluated by a gastroenterologist with world renowned expertise in the treatment of esophageal disorders. At the conclusion of the workup (endoscopy and manometry), the patient was disappointed that there were no surgical options for his benign condition. He was then referred by the gastroenterologist for a behavioral medicine evaluation with the author (MR). The patient was contemplating a trip to Mayo for a third opinion, but agreed to wait until attempting behavioral treatment. A brief course of treatment using CBT to address catastrophic fears of eating and esophageal-directed HYP resulted in a complete resolution of debilitating symptoms.

The intervention took place over a 6-week period (one initial intake evaluation, 5 weeks of treatment) during which the patient was introduced to psychological treatment and hypnosis for the first time. He reported no history of psychological impairment prior to the initial food impaction. The patient was married with one young son, was gainfully employed, and regularly exercised. Over a period of 3 months he experienced decreased appetite initially, but then began to have difficulty swallowing solids which lead to unintentional weight loss. He discontinued all exercise for fear of losing more weight. He was tolerating a liquid/soft food diet of high calorie protein drinks, pudding, and mashed potatoes. The stress of this symptom experience caused the patient to experience increased situational anxiety related to food and he began to isolate himself during meals so that others would not distract him. The initial treatment focused on providing the patient with psychoeducation pertaining to the nature of his functional issues, discussed the role of esophageal hypersensitivity and how this can impact the experience of discomfort and irritation throughout his throat and esophagus. Once the medical workup was complete, this data was sufficient in providing the

patient with evidence that there were no strictures or abnormalities that would cause him to choke and therefore that fear began to dissipate.

The patient was instructed to slowly re-introduce solid foods into his diet despite ongoing dysphagia symptoms of discomfort and the sensation that food remained in the esophagus. By eating slowly and chewing thoroughly he began to improve his diet. He kept a food log throughout treatment and also tracked his daily esophageal symptoms. Four sessions of esophageal-directed HYP were completed focusing on relaxing imagery and a decrease in physiological arousal. Each session centered on different images adapted from the scripted protocols for other esophageal and gut-directed protocols (i.e., soothing liquid, healing light, free flowing stream). Over the course of treatment the patient used a CD for daily home practice which he found very beneficial in terms of self-mastery for self-hypnosis. The final session concluded with a hypnosis intervention centered on maintaining the gains of treatment. The patient returned to his normal diet and exercise regimen, re-engaged with family, and food fears and aversion were resolved. He also planned to continue the practice of self-hypnosis and home relaxation techniques and discontinued alprazolam. It is important to highlight that had this patient not been referred for a behavioral medicine evaluation, he would have undergone a third, invasive GI workup with medical providers which likely would have put him no closer to symptom resolution. He was very pleased with the outcome and required no follow up.

## Summary and Conclusions

In conclusion, outside of medication and conventional medical treatment, options for patients with bothersome esophageal complaints are limited. While research focused on the use of hypnosis for these disorders is also limited, the strong evidence-base for HYP in other GI disorders (Palsson, 2010) can inform the future of research in this area. Despite limitations of low sample sizes and inability to double blind a trial of hypnosis, researchers should continue to pursue study in the area of esophageal concerns. In addition to an initial medical workup, HYP to manage disorders of the esophagus appears to be a viable consideration for the treatment of appropriate candidates. It has been found that in the treatment of FGIDs there is a 60–70% chance of substantial symptom reduction and long standing results (Miller & Whorwell, 2009). The authors find this treatment to be of significant value in behavioral health settings and patients find the intervention enjoyable and beneficial.

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TABLE 1

## Example Hypnotherapy Metaphors by Therapeutic Target/Symptom

**Dysphagia/Globus Sensation**

*Therapeutic Target:* Peristalsis, hypervigilance around swallowing

And as you watch the panel, and move the dial from one position to the next, you can begin to feel more and more relaxed and confident in the gentle, efficient functioning of your esophagus initiated after a swallow, more and more confident that your esophagus is functioning just as it is supposed to, moving food and liquid gently and rhythmically down into your stomach, gentle, rhythmic, and totally efficient....

**Hypersensitive Esophagus/Heartburn**

*Therapeutic Target:* Hypersensitivity to acid/normal sensations inside esophagus

Sensations that used to be uncomfortable now increasingly feel just mild and soothing and do not bother you anymore. And even if you feel some sensation of heartburn, you will most likely notice that it is surprisingly weak, much milder than before, as your sensitivity to pain in your esophagus is gradually and steadily fading away more and more, leaving you more comfortable and healthy every day. Your sensitivity to pain is decreasing steadily from one day to the next, and one week to the next, allowing you to enjoy your everyday life more and more without being disturbed or bothered. You pay less and less attention to unpleasant feelings inside you every day, as your sensitivity to pain and discomfort in the esophagus steadily fades away and disappears. You will probably find yourself forgetting about the sensations in your esophagus altogether for longer and longer periods of time, sometimes even a whole day or multiple days at a time, focusing more instead on the pleasant and enjoyable aspects of your life experience.