Mindfulness training in stuttering therapy: A tutorial for speech-language pathologists

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Abstract
The use of mindfulness training for increasing psychological well-being in a variety of clinical and nonclinical populations has exploded over the last decade. In the area of stuttering, it has been widely recognized that effective long-term management often necessitates treatment of cognitive and affective dimensions of the disorder in addition to behavioral components. Yet, mindfulness based strategies and their possible usefulness in stuttering management have not been described in detail in the literature. This article seeks to engage professionals who treat stuttering in a conversation about the possible usefulness of incorporating mindfulness training into stuttering management. A review of the literature reveals that there is a substantial overlap between what is required for effective stuttering management and the benefits provided by mindfulness practices. Mindfulness practice results in decreased avoidance, increased emotional regulation, and acceptance in addition to improved sensory-perceptual processing and attentional regulation skills. These skills are important for successful long-term stuttering management on both psychosocial and sensory-motor levels. It is concluded that the integration of mindfulness training and stuttering treatment appears practical and worthy of exploration. Mindfulness strategies adapted for people who stutter may help in the management of cognitive, affective, and behavioral challenges associated with stuttering.

Educational objectives: Readers should be able to: (1) describe what mindfulness is and how it is cultivated; (2) identify the benefits that can be produced from mindfulness practice; (3) summarize how the benefits of mindfulness practice parallel what is often required for effective long-term stuttering management; and (4) identify specific mindfulness techniques that can be taught in stuttering therapy and explain their rationale.

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1. Introduction
Living with the disorder of stuttering is associated with many problems other than physical speech disruptions. Other problems include experiencing negative thoughts and emotions related to communication (Vanryckeghem, Hylebos, Brutten, & Peleman, 2001), being subjected to negative stereotypes, prejudice, and discrimination (Boyle, Blood, & Blood, 2009; Cooper & Cooper, 1996; Gabel, Blood, Tellis, & Althouse, 2004; Hurst & Cooper, 1983; Silverman & Paynter, 1990), as well as victimization and bullying (Blood & Blood, 2007). These problems may be related to increased anxiety levels found in many people who stutter (PWS; this acronym also stands for “person who stutters”) (Menzies, Onslow, Packman, & O’Brian,
Mindfulness, as described in the following section, may add a valuable dimension to stuttering management, and understanding the context of thoughts rather than challenging and changing their content (Hayes, Luoma, Bond, (Craig, 1998) if modified speech is desired, and the mindfulness approaches described in this paper may provide a valuable supplement to speech restructuring treatments (Menzies et al., 2008).

There is evidence that negative attitudes about speech and other mental health problems are associated with impeded therapy gains (Andrews & Cutler, 1974; Guitar & Bass, 1978; Kraaimaat, Janssen, & Brutten, 1988). Even if therapy gains in speech fluency occur, there is likely to be relapse experienced by PWS after treatment ends (Craig & Calver, 1991). While there is likely a constellation of factors that is related to relapse in stuttering (Craig, 1998), recent evidence suggests that relapse is more likely to occur in individuals with mental health disorders, including anxiety, compared with individuals with no mental health disorder (Iverach, Jones, et al., 2009). Experiencing negative emotions like embarrassment about using speech control techniques has also been found to be linked with relapse (Craig & Calver, 1991). Relapse is less likely for individuals whose treatment had included cognitive and affective components compared with those who had not received this type of treatment (Hancock & Craig, 2002; Yaruss et al., 2002). From this evidence, it appears that addressing cognitive and affective components of stuttering are related to benefits obtained during stuttering treatment as well as their maintenance following treatment.

Due to the awareness of the role of cognitive and affective components in stuttering, the need for addressing these issues in treatment has been promoted by professionals (Craig et al., 2003; Menzies et al., 2008; Menzies et al., 2009) and adults who stutter (Plexico, Manning, & Dilollo, 2005; Plexico, Manning, & Levitt, 2009b). The need for addressing cognitive and affective aspects of stuttering in treatment has led to an interest in cognitive-behavioral therapy (CBT) for individuals who stutter (for an in depth review see Menzies et al., 2009). Although CBT has improved psychosocial functioning in some PWS (e.g., reduction in avoidance and anxiety), gains in fluency may not result from these treatments when given as a supplement to speech restructuring treatments (Menzies et al., 2008).

There is a so-called “third wave” of behavior therapy that involves approaches that are focused more on awareness, acceptance, and understanding the context of thoughts rather than challenging and changing their content (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Mindfulness, as described in the following section, may add a valuable dimension to stuttering management beyond or supplemental to those of CBT. PWS require treatment that facilitates self-control and self-responsibility (Craig, 1998) if modified speech is desired, and the mindfulness approaches described in this paper may provide a valuable means for PWS to accomplish these goals.

2. Mindfulness

A commonly cited definition of mindfulness is “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4). A more detailed description of mindfulness is “a process of regulating attention in order to bring a quality of non-elaborative awareness to current experience and a quality of relating to one’s experience within an orientation of curiosity, experiential openness, and acceptance” (Bishop et al., 2004, p. 234). Mindfulness is a multifaceted construct that includes observation of inner and outer experiences (e.g., noticing when one’s mood begins to change), acting with awareness (e.g., noticing the mind wandering and becoming distracted when doing an activity), and acceptance of internal and external phenomena (e.g., not being judgmental of oneself for feeling negative emotions) (Baer, Smith, & Allen, 2004). Mindfulness can be cultivated through various forms of meditation and informal practice involving either focused attention on something specific (e.g., the breath or physical sensations in the body), or open monitoring which is an alert observation to anything (thoughts, feelings, sensations) that arises without explicit focus on any object (Goldin & Gross, 2010).

Mindfulness based interventions include Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1994), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), Acceptance and Commitment Therapy (ACT; Hayes et al., 2006), and Dialectical Behavior Therapy (DBT; Linehan, 1993). Therapies in which mindfulness training play a central role have been shown to help a broad range of individuals reduce symptoms of clinical (e.g., depression and anxiety) and non-clinical problems (e.g., unpleasant affect and psychological distress) (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Grossman, Niemann, Schmidt, & Walach, 2004).

2.1. Mechanisms of change in mindfulness and parallels with existing treatments for stuttering

There are likely to be a variety of mechanisms responsible for the positive effects of mindfulness on well-being. Suspected mechanisms of change are described in this section. These mechanisms appear to parallel what is often required for long-term, successful management of stuttering. Many of these concepts are already used in traditional speech therapy for stuttering, however, utilizing mindfulness practices may be a valuable means for cultivating these skills.
2.1.1. Behavioral exposure

Mindfulness may promote exposure to internal and external events that are typically avoided (Baer, 2003). Mindfulness encourages opening up to all experiences, whether they are positive or negative. By observing feared thoughts and emotions nonjudgmentally in the absence of negative consequences, the fear response may be weakened or extinguished (Baer, 2003). This open acceptance of events typically perceived as negative can decrease escape and avoidance patterns while increasing formulation of effective coping strategies.

Behavioral exposure has long been used in the treatment of stuttering. Reducing fear and avoidance are core components of all stuttering modification therapies (Guitar, 2006) and are associated with successful long-term stuttering management (Plexico et al., 2009b). Many strategies have been used to help PWS respond in a different way to previously feared situations. Some of these strategies include voluntary stuttering, advertising, freezing the stutter, pseudostuttering, and maintaining eye contact during stuttering. Mindfulness practice may provide a means for PWS to practice exposure that can be generalized to a variety of situations because it is not context dependent. This may empower clients and provide a sense of control regardless of particular circumstances.

2.1.2. Improved emotional regulation

Memories of negative past events and anticipations of feared future events are simulations that we often do not differentiate from actual present situations to be dealt with right now (Williams, 2010). Rumination contributes to maintenance or exacerbation of negative affective responses and prevents effective problem solving (Ramel, Goldin, Carmona, & McQuaid, 2004). Mindfulness leads to decreases in rumination and this accounts for reductions in depressive and anxious symptoms (Ramel et al., 2004). Mindfulness appears to help one differentiate between natural emotional reactivity and the simulation process that adds extra meaning to those emotional reactions. Emotions continue to be experienced as they arise, however, the potential for these emotions to perpetuate the cycle of maladaptive behavioral responses and negative appraisals is interrupted (Williams, 2010).

The notion that emotional reactions to stuttering are one of the fundamental components of the disorder has a long history (Bloodstein & Bernstein-Ratner, 2008). Evidence suggests that children who stutter experience more emotional reactivity and difficulties regulating emotions than children who do not stutter (Karass et al., 2006; Schwenk, Conture, & Walden, 2007) and that decreased use of regulatory strategies is associated with more stuttering (Arnold, Conture, Key, & Walden, in press). PWS often experience an escalation in negative emotions in response to real or anticipated stuttering. Often, a feeling that one will stutter triggers negative thoughts (e.g., “I can’t say this, they will all laugh at me”) which then leads to behaviors of escalating tension, escape or avoidance. The vicious cycle of emotions, thoughts, and behaviors then increases in negativity. If emotions are regulated more effectively, PWS may be more able to focus on the behavioral targets of their treatment (whether they be fluency shaping, stuttering modification, or any other desired strategy), and less likely to experience an escalation of tension.

2.1.3. Changes in perceptions of thoughts and increased sensory-perceptual processing

Mindfulness increases metacognitive awareness and provides a mechanism for disrupting the literal interpretation of words and thoughts by observing thoughts as “just thoughts,” rather than absolute truths (Teasdale et al., 2002). Thoughts are viewed as passing mental events rather than totally accurate reflections of reality. In addition, mindfulness training cultivates a balance between sensory-perceptual processing (e.g., visceral interoception, proprioception) and conceptual-language based processing (e.g., analyzing, judging, self-reflecting, labeling, etc.). Recent neuroimaging studies show that mindfulness training can uncouple these two modes of processing and increase activity in perceptual-sensory processing areas of the brain (Farb et al., 2007; Farb et al., 2010; Goldin, Ramel, & Gross, 2009).

Reducing literalness of thoughts combined with increasing sensory-perceptual processing can likely benefit PWS. Tuning in to the sensory mode will increase physical sensations of speech production. In the stuttering literature, the term “proprioception” has been used to describe the activity of feeling articulatory movements and vocal fold vibration (Guitar, 2006). Professionals have stated the importance of teaching increased attention to the physical feelings of the speech mechanism for long-term change in stuttering management (Conture, 2001; Guitar, 2006) to compensate for potential deficits in auditory processing (Brown, Ingham, Ingham, Laird, & Fox, 2005) or speech motor skills (Lieshout, Hulstijn, & Peters, 2004) that have been found in many PWS. Mindfulness training could be a means of cultivating the ability to tune in to that sensory modality.

2.1.4. Attentional control

Mindfulness requires attention on the present moment experience. Mindfulness training has been shown to increase attentional control seen through decreased reaction times (Chambers, Lo, & Allen, 2008) and increased sustained attention on tasks (Jha, Krompinger, & Baihle, 2007). Recent neuroimaging studies reveal increased activity in brain areas related to attentional deployment and regulation after mindfulness training (Goldin & Gross, 2010; Goldin et al., 2009). In stuttering, attention appears to be one of the most critical foundations for all of the skills our clients are taught. It requires vigilance to make the changes required in stuttering therapy. However, research has demonstrated that PWS, including children, may experience difficulties controlling and focusing attention (Heitmann, Asbjornsen, & Hellend, 2004; Karass et al., 2006). It is possible that PWS would benefit from mindfulness training that explicitly focuses on improving attentional skills that could be integrated with traditional speech therapy techniques.
Increased attention to and awareness of thoughts, feelings, and behaviors associated with stuttering also counters the
tendency for denial (Starkweather & Givens-Ackerman, 1997) and may have implications for reducing relapse. Relapse may
involve dysfluencies creeping back into the client’s speech which might increase fear and avoidance without the person
being fully aware of it (Starkweather, 1993). The negative cycle of fear, stuttering, and avoidance gets stronger until the
client reverts back to where he or she was before treatment. If the client can attend to the early signals of fear and avoidance,
there could be less of a chance that full blown relapse will occur.

2.1.5. Acceptance

Acceptance is an integral part of mindfulness practice which is the opposite of avoidance, escape, or suppression of
symptoms (Baer, 2003). Suppression, avoidance, escape, and inhibition result from non-acceptance of one’s current situation.
One may engage in many types of maladaptive behaviors in an attempt to change unpleasant experiences. Mindfulness based
therapies have been shown to lead to increased acceptance seen through lower levels of experiential avoidance (Roemer
& Orsillo, 2007). In addition, acceptance based interventions are associated with lower levels of anxiety compared with
treatments lacking an acceptance component (Levitt, Brown, Orsillo, & Barlow, 2004).

The importance of acceptance in the successful management of stuttering continues to be emphasized by both profes-
sionals (Gregory, 2003; Guitar, 2006; Starkweather & Givens-Ackerman, 1997) and clients (Plexico et al., 2005; Plexico et al.,
2009b). Acceptance is a counterpunch to the maladaptive and defensive reactions (e.g., avoidance, fear, and struggle) that
only exacerbate stuttering. Recent qualitative studies suggest that adaptive coping skills and increased quality of life among
PWS may be related to increased acceptance and less avoidance of stuttering (Plexico, Manning, & Levitt, 2009a; Plexico et al.,
2009b). Mindfulness may prove to be a valuable means for facilitating acceptance of stuttering related behaviors, thoughts,
and feelings among PWS.

2.2. Can mindfulness help with stuttering management?

When looking at the challenges associated with stuttering and their consequences presented in Section 1 and comparing
them to the reported benefits of mindfulness described in Section 2, it appears as if investigating the effects of mindfulness
training in stuttering management may be worthwhile. Recent neuroimaging studies on PWS demonstrate weak neuronal
connections between speech-related areas of the brain, indicating a deficiency in sensory feedback during speech production
(Chang, Erickson, Ambrose, Hasegawa-Johnson, & Ludlow, 2008). The greater activation in somatosensory areas of the brain
associated with mindfulness (Farb et al., 2007; Farb et al., 2010) adds support to the idea that mindfulness training may
benefit PWS through improving sensory feedback and attentional focus believed to be necessary for fluent speech production
(see Vasić & Winjen, 2005, for a different perspective on the consequences of heightened attention to speech). Mind-
fulness appears to be a practice that may facilitate many critical processes related to stuttering “recovery,” or its successful
management, in both its psychosocial as well as sensory-motor dimensions.

The next section will detail some suggestions for implementing mindfulness based practices in stuttering treatment. It is
important to keep in mind that although many of the benefits of mindfulness training mentioned in Section 2 have been
observed for children and adolescents as well as adults (Goodman & Kaiser Greenland, 2008), the following section focuses
on traditional mindfulness strategies intended for use with adults. Although young children who stutter may demonstrate
awareness and negative emotional reactions to stuttering (Yairi, 2004) and may possibly benefit from mindfulness practices
in therapy, the traditional strategies presented in this paper would need to be adapted to be developmentally appropriate
for that particular age group. These adaptations are beyond the scope of this article, however, other sources describe the
topic of mindfulness for children in detail (see Kaiser Greenland, 2010).

3. Applications of mindfulness to stuttering treatment

3.1. Techniques used in mindfulness training

This section gives some specific examples of techniques and strategies typically used to teach mindfulness, and explains
their potential usefulness and application to stuttering treatment. These techniques are adapted from MBCT (Segal et al.,
2002), originally developed for relapse prevention for depression. All of the activities are structured to (1) increase the client’s
ability to sustain attentional focus, (2) teach the client the difference between thinking about sensations and experiencing
them directly, and (3) teach clients to relate differently to thoughts and feelings (Williams, 2010).

3.1.1. Awareness of everyday activities

Bringing increased concentration and awareness to everyday actions helps clients break out of “automatic pilot” (i.e.,
the tendency for the mind to be out of sync with what the body is doing). Increasing ability to pay attention intentionally
can be done at first by having clients eat a raisin mindfully. Clients are instructed to eat the raisin as if they had never
eaten one before, and to focus on things like taste, texture, and feel. Emphasis is put on awareness of the direct sensory
experience of eating the raisin and not awareness of factual intellectual knowledge. It demonstrates to the client that
attending to something deliberately changes the experience itself. This conscious attending can be done with anything, for
example walking, washing the dishes, taking a shower, etc. In stuttering treatment, this “beginner’s mindset” and curiosity
about activities taken for granted can be applied to speaking. It may facilitate the client’s ability to tune in to the physical sensations of speech production rather than thinking about or intellectualizing the techniques.

3.1.2. Body scan

The body scan involves bringing focused attention to various parts of the body. Attention is given to a certain part of the body, held in awareness for a brief time to explore any sensations that arise in that area, and then let go before focusing attention on the next region (Williams, 2010). Using the body as a focus of attention is particularly useful because it demonstrates the link between the mind and the body. This practice opens up a new dimension of experience to the client because it may be possible to identify for the first time how a particular thought or emotion feels in the body, positive or negative. The body scan has applications for PWS because it may increase awareness of tension associated with thoughts and feelings related to speaking and stuttering. Increased awareness of bodily sensations may improve self-monitoring of the muscles used in speech and likely facilitate easier speech production.

3.1.3. Awareness of the breath

The client focuses on the physical sensations of the breath going in and out of the body. The sensation of air going in and out of the nostrils, or the expansion and contraction of the abdomen can be monitored. The client allows for thoughts, feelings, and sensations to come and go without judging or reacting to them, and then returns focus to the breath. Segal et al. (2002) recommend the use of a “three minute breathing space” for clients to reconnect with the present moment and get out of “automatic pilot.” This involves: (1) focusing awareness on what you are doing and how you are feeling (thoughts, feelings, physical sensations) with acceptance, (2) focusing attention on the breath, and (3) expanding attention to the breath to a sense of the body as a whole. Focusing on the breath is another way to increase attention and awareness of bodily sensations and may provide a foundation for monitoring the speech production process for PWS.

3.1.4. Changing one’s relationship to thoughts

Clients learn that thoughts are mental events that do not necessarily represent absolute truths that must be acted on (Segal et al., 2002). Changing one’s relation to thoughts can involve several strategies including viewing thoughts as images flashing on a movie screen. This metaphor is particularly useful because after seeing a movie several times, one knows the script and the novelty wears off. In the same way, the scripts of the mind which recur again and again lose their power once the client becomes aware that a mental tape is being played. When thoughts overtake the client, Segal et al. (2002) have some recommendations: (1) watch thoughts come and go without following them, (2) view thoughts as mental events rather than facts that need to be acted on now, (3) write thoughts down on paper so that emotion is less overwhelming and gives time for a more thoughtful response instead of automatic reaction, and (4) look at how the thought emerged and whether or not it fits with the current situation. These strategies may help the client relate to thoughts differently.

3.1.5. Creating an action plan for relapse

First, the client and clinician create a list of actions, behaviors, or feelings that are associated with being empowered and in control when speaking. Then, a list is created with actions, behaviors, or feelings that are associated with relapse. Creating the list serves to increase the client’s awareness of these factors which is essential for catching early signals of relapse before it snowballs into an unmanageable problem. It is also important to identify factors that prevented early identification of relapse signals in the past (e.g., denial, distraction, blaming others, etc.). In addition, finding ways to include friends and family in the relapse detection process will strengthen the alarm system signaling that the old ways of doing things are taking hold again. The point is not to totally prevent any regression from happening, but to know how to deal with it when, not if, it happens. Segal et al. (2002) recommend a three step plan of action for dealing with relapse: (1) take a three-minute breathing space (described in Section 3.1.3), (2) make a choice based on what has been helpful in the past to gather themselves and feel centered again, and (3) take some type of action or engage in some activity which will result in achieving empowerment and mastery.

3.2. Taking action mindfully

It is known that many PWS have difficulty employing their speaking strategies or techniques in situations in which they really want to use them and that, often, the harder they try to be fluent the less fluent they are (Plexico et al., 2009a). Some researchers have theorized that PWS demonstrate excessive attention to their dysfluencies and apply overly strict criteria about what constitutes acceptable speech output (Vasić & Winjen, 2005). Learning a mindful way of action may be beneficial under these circumstances. Traditional stuttering therapy techniques may provide clients with what they need to do, and mindfulness training could be beneficial in teaching them how to do it in a way that maximizes the potential for successful execution.

According to Segal et al. (2002), taking action works best when it begins with a time of silence, like the three-minute breathing space. This gathers the individual and heightens the sense of awareness needed for optimal decision-making. At the end of the breathing space the client asks what is needed right now to gain a sense of mastery over a situation. Once a decision is made about what action to take, there are several recommendations made for how to carry out the action: (1) try to perform the action as an experiment, without predetermining how you think you will feel afterward or whether or
not it will be helpful, (2) consider trying a wide range of actions without restricting yourself to one which you think is your favorite or most helpful, (3) keep your expectations realistic and do not expect a dramatic change. Have the intent to carry out the action you want, but putting large amounts of pressure on oneself to be perfect is unrealistic.

It is beneficial to think of performing speech techniques as letting a process unfold naturally instead of fighting to achieve some ultimate desired end and being attached to the idealized result. If one focuses on the idealized end result, one uses valuable attentional resources constantly comparing what is actually happening to what is desired. This constant comparison detracts from one’s ability to process the total depth of the experience (Segal et al., 2002). When these judgments decrease, one may be more able to focus more on the sensory-perceptual processing necessary for fluent speech production.

4. Conclusion

The use of mindfulness has become increasingly popular in recent years for the treatment of several different populations. The purpose of this article is to promote discussion about the use of mindfulness training to empower PWS to communicate freely. Specifically, this article aims to provide clinicians who treat stuttering with a means for cultivating and facilitating qualities and behaviors in clients that are associated with effective long-term stuttering management through mindfulness training. Research on mindfulness suggests that many of the benefits gained by its practitioners match up quite well with the needs of PWS to successfully manage stuttering, in both psychosocial and sensory-motor levels. With the increasing awareness of the critical role that inner experience has in stuttering management, it makes sense that treatment approaches that address these dimensions will continue to be explored.

As this review demonstrates, mindfulness and acceptance based practices appear to be a potentially useful component in stuttering treatment. Research exploring the effect of mindfulness on stuttering management should be a priority for those interested in providing better services for PWS. The effects of mindfulness based therapy programs on stuttering should be investigated, as well as the effects of certain subcomponents of mindfulness mentioned in this paper (e.g., acceptance based processing, sensory-perceptual self-focus) on therapy outcomes. The mindfulness techniques used in therapy should be tailored to the needs of PWS and integrated in a theoretically consistent manner with evidenced based interventions for stuttering. Finally, training and personal experience in practicing mindfulness are necessary for clinicians using mindfulness as a major component of their therapy. The ASHA code of ethics makes clear that speech-language pathologists should only be engaged in therapy they feel competent to perform (ASHA, 2010), and this includes mindfulness training.

CONTINUING EDUCATION

Mindfulness training in stuttering therapy: A tutorial for speech-language pathologists

QUESTIONS

1. Mindfulness is best described as:
   a. a way of cultivating critical thinking and analyzing skills
   b. cultivating a blank mind in which no thoughts occur
   c. judgmental observation and attending to present moment experience
   d. non-judgmental observation and attending to present moment experience
   e. operating on “automatic pilot”

2. Mindfulness training has been shown to produce which of the following results?
   a. increased acceptance of internal and external events
   b. improved attention and awareness of everyday activities
   c. decreased sensory-perceptual processing abilities
   d. answers a, and b only
   e. answers a, b, and c

3. How does mindfulness training parallel what is required for successful management of stuttering?
   a. by increasing exposure to stuttering
   b. by breaking up negative thought cycles
   c. by improving attentional control
   d. by improving proprioception during speaking
   e. all of the above

4. Strategies to teach mindful are structured to:
   a. increased sustained attentional focus
   b. teach the difference between thinking about sensations and experiencing them directly
   c. teach the importance of comparing what is actually happening to what should be happening
   d. answers a, and b only
   e. answers a, b, and c

5. According to the author, mindfulness:
a. is an avoidance technique to hide from stuttering
b. can only be used with fluency shaping strategies
c. should be adapted specifically for people who stutter
d. should be used indiscriminately for people who stutter
e. encourages a person to try harder to produce fluent speech

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References


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