

Cue exposure + response prevention for obesity:

The protocol

Most overeating of the obese is cued overeating. Possible cues are food-related (e.g., smelling, tasting or viewing the food), consist of emotions (e.g., feeling down) or contexts (leading almost automatically to habitual overeating) or cognitions (e.g., I have to eat this chocolate). Cue exposure with response prevention intends to extinguish the desire or craving that is elicited by the cues. Extinction of the cued desire will decrease the frequency of cued overeating. The extinction training consists of three parts: (1) first the rationale is explained to the client; (2) next inventory is taken of the cues for overeating; (3) and finally the link between the cues and the overeating is eliminated.

1 explain rationale

Research has indicated that understanding the rationale of a treatment improves its success. Not only during the exposure phase, but also when taking inventory of the cues, understanding the rationale is extremely valuable. An example of how the rationale can be explained is given in Appendix I. At least as important as a transparent explanation by the therapist is virtually clear feedback from the client. Homework assigned after the first meeting is therefore to study the theory. During the second meeting, the client explains to the therapist why the treatment is needed.

2 cues for overeating

During the first meeting, after the rationale has been explained, a start is made with taking inventory of the cues for overeating: which cues do indicate that an overeating episode is forthcoming and which cues accompany the overeating? Think of a set of cues directly related to the preferred foods, such as seeing, smelling and tasting favourite foods. It is recommended that with reference to cues, individually customised sets be used. When anxiety is involved, customised sets have proven to be the most effective (Foa & Kozak, 1986), while research regarding alcohol indicates that the more likeness the cue has to the favourite beverage, the better the reactivity is (Rohsenow, Monti & Abrams, 1995). Contexts are also important to consider, for example locations or situations that are frequently coupled with overeating.

Start by carefully analysing the last overeating episode. Does the client remember when that took place? Determine whether eating desires were triggered by something special or suddenly came out of the blue. Overeating seldom occur out of the blue, although the overeater might think so, so keep asking. Did the client see an advertisement, or did she see, smell or taste something she likes? Did she eat a preload or an appetiser? Was she in a special mood, did certain thoughts cross her mind (like: "I must eat" or "a little bit won't hurt"). What rituals ("cook-up") took place; are there certain rituals that initiate the overeating? Did the client do anything special before eating? It can be helpful to suggest that (s)he makes a "movie" of her last overeating episode: what is the first thing that is shown on the screen?

Determine the time at which the overeating occurred. Is this the usual time? Where did the eating take place? Does she always eat there or does she sometimes eat somewhere else? Determine as accurately as possible the place(s) where the client overeats. Sometimes the eating starts in the car or on the bicycle, after shopping. Is she alone when she eats? Always? Does she eat the food directly from the packaging? Or does she prepare it in some

way? Does she eat from the pans, using utensils or does she eat with her hands? Is the food arranged in a certain way? Does she eat it in a certain order? Does she listen to music while eating? Does she turn the television on? Does she thumb through magazines? Finally, determine exactly what the client ate during the last overeating episode. Accurately determine how much of the various foods she eats. The major cues are listed in Appendix II; systematically go through the entire list.

Take time for taking inventory: it is a major component of the treatment. Exposure to the wrong cues is useless. Analyse more than one overeating episode and determine whether your understanding of the overeating is accurate. Clients who are embarrassed about their behaviour will not tell all. Talk about this with the client and make sure she understands that you have vast experience with complaints of this type. For homework, tell the client to think about the period preceding the overeating. Has she forgotten some of the signals? A desire or craving diary (register the time, the actions, the thoughts and feelings from the time the craving occurred until the overeating started) can be helpful.

During the second meeting, the therapist repeats what has already been discovered and continues to take inventory. Once the overeating is completely understood, the scenario to be applied at the next meeting - the first exposure - is discussed so that the client clearly understands it. In order to learn the exposure techniques, a practice session - during which not all of the cues are available - is held in the therapist's office first. The client will be exposed to a large quantity of craved foods. If many different types of food are consumed during the overeating, 'top 4' foods will suffice. The top 4 are the foods that are particularly difficult to resist and that are virtually always consumed during overeating episodes. What will happen during the session must be discussed in detail. The time at which the exposure will take place must be agreed on, together with what the client will purchase (she pays for the food herself) and when she is to do what (= her homework).

3 eliminating the cue - overeating link

During the exposure there is only one goal that the therapist and his client strive to achieve collectively: the client's craving or desire for food must be made as great as possible. As soon as the craving decreases (extinguishes), the therapist tries to "pump it up". In order to help the client during this difficult assignment, the therapist plays a number of difficult roles.

The therapist as director

The client is the leading star in the exposure performance, but behind the scenes, the therapist is the director. He urges the client to go through the entire ritual as true to life as possible. This means that all of the cues play a part: the exposure takes place at the usual overeating time, at the customary overeating spot and with the foods that frequently lead to overeating. All the cues for overeating are included: perhaps specific music, magazines, etc. Thoughts that normally accompany the overeating are rethought and moods/emotions are induced. The latter can be done in a number of ways: e.g., (1) the client remembers during the exposure an event that irrevocably brings on the intended mood; (2) the therapist reads through the notes the client has made about the event while the client tries to re-experience it. The therapist brings the feelings to the surface " *has happened. You feel left out and lonely and you cannot deal with those feelings. In desperation you grab the peanut butter. First a lick, then a spoonful and then the dam has burst...*"; (3) music is played that brings on the intended mood. There are undoubtedly more ways to organise cues that are difficult to present: think in this respect of visualisation and role-playing. Alcohol studies have indicated that mood induction magnifies the urge to drink (Rohsenow, Monti & Abrams, 1995; Cooney et al., 1997). The preparations for the overeating are also played out. However, there is one difference between the treatment and the overeating: during the exposure the client may not eat.

The therapist encourages the client to touch the food, to feel around in it, to grab it and hold it to her nose. She must smell it, inhale it. (Tip: try doing this yourself for five minutes with something that you yourself love, that you are "addicted to", as it were). The intention is that smelling and inhaling will create a virtually irresistible craving. Again, the objective is to make that craving as strong as possible. If necessary, let the client take a lick or a small bite.

After the exposure is ended, the client throws away the food. If this is at the client's home, the therapist and the client discuss a tactic that will prevent the client from grabbing it from the garbage and eating it once the therapist has left. For example, you can pour water in the bin, or think of another creative solution.

The therapist as model

The therapist not only encourages the client during the exposure but also participates enthusiastically. It is vital that the therapist sets a good example. It is pretty strange to the client to be smelling and licking all these forbidden fruits in the presence of a stranger. She is afraid she will lose control (after all, it is very tempting), is embarrassed and would prefer to get it over with as easily as possible. The therapist therefore sets a good example: he grabs, smells, inhales, licks, takes a tiny bite and confirms all of the things the client is doing correctly: *"Good, now pick up the bag of cookies. Hold it close to your nose.... like this... yes, that's right, inhale it.... Inhale deeply, yes, that's the way ... and continue to drink in the smell... inhale it again, what do you smell? What does that remind you of? Do you feel your mouth watering? Are you feeling that urge? What can you do to make the urge to eat stronger?"* And then: *"now what do you want to smell? Take it...smell it. Concentrate on that odour.... How is your urge to eat now? Can you feel more craving? What would make your urge stronger? Go ahead and do it..."* Then, after a few minutes: *"can you smell that chocolate? Is the smell stronger after you break the chocolate bar? Go ahead, break it, and smell it.... why not lick it?"* The better the example set by the therapist, the greater the

chance that the homework and exposure for which he is not present will be performed properly.

The exposure will probably be extremely frightening to the client. Be nice! Being a nice therapist does not mean that the exposure will be less intensive or postponed.

The visiting therapist

Once the client has more or less mastered the technique, the exposures are held at the overeating spot (context), frequently at the client's home. The therapist visits the client so that they can perform the exposure together. He has three tasks: (1) he teaches the client how to do the exposure; (2) he watches for (cognitive) avoidance and immediately puts an end to it; and (3) he makes sure the client does not lose control. Preventing cognitive avoidance is particularly important. Focus the client's attention on the cues and the reactions they cause. If the therapist doesn't, the cue reactivity will be less and the chance of extinction is reduced. Anxiety research shows that concentrating on the cues and the reactions they cause results in a markedly stronger cue reactivity and greater extinction between the sessions than when the concentration is less (Rohsenow, Monti & Abrams, 1995).

Because the therapist is usually not part of the overeating, his presence during the exposure is not wanted. He is not a cue, he is more like a *safety signal*: a cue NOT to overeat. This is why the therapist should move to behind the scenes as quickly as possible. Clients might be able to handle the exposure alone after three or four times practice with the therapist. Then they know how to do the exposure, providing the therapist has set a good example. Hopefully they will no longer avoid and because the craving has started to die out, they will not be afraid of losing control.

As soon as the therapist and the client agree that the client can handle the exposure alone, the therapist leaves the stage. Preferably, the therapist must be nearby during the next two

exposure sessions: in the next room, for example. If that goes well, he can go back to his own office. He must, however, continually be easy to reach, and after the exposure the client comes to discuss progress and to go through her homework. Reserve about twenty minutes for this discussion.

The extra time the therapist needs for the home visits at the beginning of the therapy will be more than compensated for from the time the client can practice alone. For some therapists, however, the house call is impossible and a confidante is recruited. Note that many confidants will not be able to lead the exposure. The primary task of the therapist during the exposure is to ensure that the practice is done properly. He sets a good example, joins in the fun, and makes sure that there is no (cognitive) avoidance, that it does not turn into a cosy chat and pushes the right buttons at the right time. The therapist has learned how to do this, the client's best friend has not.

When to stop?

If the exposure lasts long enough, the desire for food will slowly diminish despite all attempts to keep it as strong as possible. In order to assess whether the exposure has been performed successfully (the craving/desire becomes strong and then slowly extinguishes) you must regularly (every ten minutes, for example) register how strong the craving/desire is. The handiest way to do this is to use a 100% Visual Analogue Scale (VAS); a horizontal line that is exactly 100 mm long located above the words "I feel *at this moment*", with on the left-hand side of the line "absolutely no desire to eat" and on the right-hand side "an irresistible desire to eat". Each registration is made on a different piece of paper, so that the client does not know exactly how strong the craving was a few minutes ago.

In theory, the duration of the confrontation is dependent on the speed at which the craving extinguishes. Once the craving has extinguished, there is no point in continuing the exposure; if extinction has not yet occurred, the client is in danger of it returning *even more*

strongly the next time she is exposed to the cues (*sensitisation*). The rule of thumb is to stop the session once the craving has died down sufficiently: if the last level of the craving has dropped below 20 on a 100% scale, or - as an alternative - if the strongest craving has been reduced by 50%.

Our clinical experience indicates that the craving for food can diminish considerably in sixty minutes, and studies with anxiety patients indicate that exposure lasting from fifty to ninety minutes - no longer and certainly no shorter - is the most effective (Foa & Kozak, 1986; Marks, 1987; Rohsenow et al. 1995). In a few cases, the course the craving takes is unpredictable: it stays high for a long time and then suddenly, from one moment to the next, expires. With other clients, it is as if the craving cannot become strong enough: it scarcely reaches 50. The latter is more concerning, because if the craving is not becoming strong enough, something is wrong. Are there cues missing? Does the craving increase if the therapist is not present? The objective of the exposure is to trigger the strongest possible craving, and the rule of thumb is that it must reach at least 80 at some point in the session.

Anxiety researchers have documented more than enough that exposure will not succeed unless the sessions are repeated regularly at relatively short intervals. There is no reason to assume that this is any different for overeaters. Five times a week is more effective than less-frequent exposure (Drummond et al., 1995). If homework is assigned, this frequency should be easy to achieve.

The number of sessions, like the duration of a single session, is dependent on the extinction of the craving. If a number of successful exposures have occurred in which the craving became very strong and then died out, and if the craving repeatedly fails to rise above 30 on a 100% scale *no matter what*, then you can stop. Opiate studies indicate that exposure session lasting an hour are considerably more effective than ten minute sessions: with ten minute sessions, the craving did not expire until after eighteen sessions, while 45 minute sessions can result in the craving expiring within six sessions (Rohsenow et al., 1995).

In short: the objective of the exposure is to create an intense craving for food. Make sure that all relevant cues are present insofar as possible; try to keep the craving as strong as possible (measure!); set a good example and prevent (cognitive) avoidance. A session is successful if the craving has virtually expired (lower than 20 on a 100% scale or half the strongest level). The treatment is stopped if the craving repeatedly fails to rise above 30.

Homework

During the third meeting, the client determines a hierarchy of tempting foods, based on the degree to which the food causes a strong desire to eat. Do not forget: the food at the bottom of the hierarchy is also tempting and elicits desire. Between the sessions, the client exposes herself to the food five out of seven days, starting with the food at the very bottom of the hierarchy. The client smells this food at home and continues to smell it until the craving for the food disappears. The homework need not be done with large quantities of food, but the quantity must be sufficient to cause considerable craving. Organise the homework with an increasing level of difficulty.

Have the client register her craving every ten minutes during these homework sessions, and explain to her that she must not stop the exposure until the craving for food has virtually disappeared, because if the exposure is too short, it will result in sensitisation rather than desensitisation.

Stimulate the client to think up creative homework exercises. Monitor the hierarchical order and thus the level of difficulty of the exercises. If a client finds it difficult to determine the hierarchy, a visit to a supermarket can help. Slowly pass through the aisles, and the list will probably be made in no time.

Discussion

Cue exposure with response prevention is a new method for combating cued overeating in the obese. Briefly summarised, the treatment starts with a clear explanation of the rationale, after which inventory is taken of all overeating cues. Then the actual exposures are started; first in the therapist's office and then in the usual overeating context. During the first exposure sessions, the therapist is present, after which he slowly leaves the stage. Homework is assigned for five days in the week and the level of the craving for food is continually registered.

The exposures must be performed in vivo insofar as possible. Various studies with anxiety patients and alcoholics have proven beyond doubt that in vivo exposure is considerably more effective than in vitro exposure, by which the cues are only present in the mind (Foa & Kozak, 1986; Rohsenow, Monti & Abrams, 1995). In most addiction studies, the cues are offered in a certain hierarchy: first the less-tempting cues and gradually the more tempting cues. Our experience indicates that flooding - presenting as many cues as possible and starting right off with the most difficult - creates stronger craving, which allows more extinction of craving responses than gradual exposure. Cues like seeing, smelling and tasting the favourite tempting food are always used, and including the overeating context, emotions and cognitions are recommended. Please come as close as possible to the regular overeating situation by recruiting all the cues predicting the overeating.

In addition to correctly apply the techniques explained above, a number of general skills are required (see Appendix III). For example, it must be explained to the client in detail what the therapy consists of, and the client must understand how hard the therapy is. It is an extremely difficult therapy requiring commitment and stamina, and it absolutely must be given top priority. Make sure that agreements and homework assignments are clearly understood. Organise the meetings; make an agenda for each session. Always relate back

to the therapy's rationale when new elements are added or when things are not going the way they should.

Pilot studies suggest that this is an extremely effective method for combating overeating. Properly controlled, large-scale studies are now necessary to find out whether cue exposure with response prevention is indeed able to reduce the frequency of cued overeating in obesity.

References

When publishing about the use of this protocol, please cite:

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Appendix I: The Rationale

“Some people who overeat on a regular base are addicted to food, in a sense. They feel a strong desire for food (craving) and might then believe that they 'must' eat. Do you recognise this? Do you, when you feel a strong craving/desire for food coming on, believe that you 'must' eat? And once you start you are unable to stop? That sounds like an addiction, don't you think? Alcoholics, for example, also feel the urge to drink coming, and then it is as if they 'must' drink, and once they start, they are unable to stop.

Scientists have determined that alcoholics usually have a very good reason to drink and to keep on drinking. We believe that people who overeat have an equally good reason for eating too much sometimes. First I will tell you about the alcoholic, and then we will see if the same thing might apply to you.

When an alcoholic sees or smells alcohol, his body starts preparing to consume the alcohol. Seeing and smelling alcohol almost always precedes the drinking, so the body knows after smelling the alcohol that alcohol will be coming. It predicts that alcohol is coming because this is almost *always* the case in these situations. Now, you must know that drinking alcohol has physical consequences: when you consume alcohol, for example, your heartbeat increases, and there are other effects, including changes in the body temperature and the blood pressure. But let's just talk about the heartbeat.

The body of an alcoholic that smells alcohol can be virtually certain that alcohol will be coming. Alcohol disrupts the balance in your body and our bodies do not 'want' this. As soon as a body knows that alcohol is coming, it starts taking measures to counteract the effects of the alcohol. As I just said, one of the effects is a faster heartbeat. What do you think happens with the heartbeat even before the alcohol is consumed, at the point in time when the alcoholic's body can predict that alcohol will soon be coming? That's right. When the body smells alcohol, the heartbeat *slows down*. Even more fascinating is the fact that the alcoholic feels or experiences the slowing heartbeat as a strong, virtually irresistible urge to

drink.

In essence, what happens to people who overeat might be the same. When you smell your favourite food, or see it or even just think about eating it, your body starts preparing to process the food. This happens because thinking, smelling, seeing and tasting the food often precedes the eating. In a sense, your body can virtually predict that you will start eating, because you often do in these situations. So your body predicts that food is coming, and the effect of that food, for example, is that your blood sugar level increases. This increase disrupts the inner balance, and your body wants to prevent this and takes measures to counteract the effects. It prepares for food intake by starting to compensate for the consequences of overeating. In this case, when you think, see or smell your favourite foods, your body might respond by e.g., lowering blood sugar. You feel a strong, virtually irresistible desire for eating the food. Not only seeing, smelling, tasting and thinking result in desires to eat. There are often other cues that predict overeating. Low mood or other emotions might be associated with overeating. Many people feel down just before they start overeating. The spot where you overeat and the time at which you overeat can also become signals for overeating. We will try to discover what signals precede your overeating.

So if you run into a cue for overeating, your body starts taking measures to properly process all of the food. You experience this as a strong desire or craving for food. What do you think we should do in order to put an end to that craving, and thus to the overeating?

Right. We have to make sure that you do not run across these cues anymore. What? Walk around them? You mean avoid the cues? Do you think that is the best solution? Could you avoid them forever? No, there is a better way. You must make sure that the cues are no longer cues predicting the overeating. You can achieve this by exposing yourself to the cues without eating. As a result, they lose their predictive value. And if eating is no longer predicted, your body will no longer start preparing itself for the intake of food, and you will no longer feel the craving. Do you understand? Do you have any questions?

Appendix II : cues for overeating

Possible cues:

- seeing, smelling, tasting favourite / tempting foods
- thinking of the food
- being alone
- moods (down, afraid, lonely, bored, excited)
- cognitions (disinhibiting, depressogenic)
- certain time(s)
- the location(s) or context
- rituals / habits prior to eating
- ritual / habit during the overeating

Appendix III : general therapeutic skills

General:

- Make sure the therapist-client relationship is good
- Structure the meetings, compile an agenda together with the client
- prepare the client well for the difficult exercises
- work together with the client
- let the client take many initiatives
- give the client a lot of control
- do *in vivo* exposure, not imaginary
- watch for (cognitive) avoidance

Appendix IV: Protocol

Session 1

- discuss rationale
- explain the duration and structure of the treatment
- take inventory of cues
- homework: study the rationale and register cues in a craving diary

Session 2

- client explains the rationale to the therapist
- take inventory of cues
- homework: buy the top 4 foods (determine together what, how much and when)

Session 3

- practice with the top 4 in the therapist's office
- discuss the exercise and make the link back to the rationale
- determine the hierarchy of craving-eliciting foods
- homework: practice 5 out of 7 days with food from the hierarchy until the craving has extinguished

Sessions 4, 5 and 6

- briefly discuss the homework
- flooding at overeating spot in the presence of the therapist
- homework: practice 5 out of 7 days with food from the hierarchy until the craving has extinguished

Session 7 and further

- briefly discuss the homework
- flooding at the overeating spot without the therapist (therapist (slowly) leaves the stage, but is still easy to reach)
- homework: practice 5 out of 7 days with food from the hierarchy until the craving has extinguished