Relaxation and Biofeedback Training

A stress response occurs when an individual perceives a threat. The autonomic nervous system causes adrenaline to race throughout the body. The adrenaline results in reduced blood flow to the extremities and increased blood flow to the large muscle groups, and to the heart and lungs. The individual is now prepared for “fight or flight”. At these times, the pulse rate will increase, blood pressure will increase, the breathing rate will increase, and you may begin to sweat. When you are stressed or afraid, this system is easily activated and the temperature of your extremities, such as the fingers, will decrease because of reduced blood flow to them.

Different devices can measure these biological changes and give you feedback by means of scales and gauges. This is the origin of the word “biofeedback”. This change in temperature can be very accurately measured by the use of a small biofeedback device that is taped to the middle finger. The feedback is a digital read-out.

The body is very sensitive to and reacts to what the mind is focusing upon. If you are talking about something painful such as the death of a loved one or of some type of abuse, your stress response is likely to be activated and your finger temperature will decrease. On the other hand, if you think of a pleasant beach scene or of some place in your childhood where you felt safe, your temperature will increase. The device measures in 1/10 of one degree but a change of two degrees is usually accepted as being significant and not just the result of some slight change in the position of your arm.

Goal: The goal is to learn the words, muscle sensations, and visual images that are associated with relaxation, and to practice them enough so that you can effectively utilize them when you are preparing for or are in a stressful situation. If you can raise, and lower, your temperature by five to ten degrees, when you want, by the use of certain words, thoughts, or focus upon muscle sensations, you will find your level of anxiety will be reduced significantly and you will notice you have far fewer fears.

Procedure: Dr. Krummel uses the biofeedback device as a training tool for patients. He also encourages them to purchase the inexpensive device so they can practice in locations other than his office.

Baseline: Tape the thermistor to your middle finger and lay your hand, palm up, in a relaxed position by your side. Do not put it on your lap as that will artificially raise the temperature. For the same reason, do not hold the thermistor between your fingers and thumb. When you begin to practice with the biofeedback device, allow about two minutes for the thermistor that is taped to your finger to adjust to your body temperature. Remember, it had been adjusted to the ambient temperature of the room.

Frequency of practice. Practice does not make perfect but it does make progress. You may have demonstrated the stress response thousands of times in your life. You will need to practice the relaxation response at least hundreds of times to interrupt the old stress habit. This is much easier that it sounds.
Where to practice: When you first begin to practice with the temperature monitor, it is best to practice in a quiet area, alone, sitting or lying, and for about ten to thirty minutes at a time. Take off your glasses and contacts, sit or lie comfortably, with your hands at your side or on your lap. You can move around when you want to make yourself even more comfortable.

When to practice: Some people practice in bed at night—and then they say it helps them sleep. That is a good outcome but practicing in the morning or at lunch or in the early evening will allow you to apply the relaxation strategies you are learning to practical situations during the day or evening. We sleep when we sleep and so are not applying these strategies then. As you progress and have completed several weeks of longer sessions, you can then shorten them because you will have learned what postures, thoughts, and words are most effective for you. You will know if they are effective because the digital numbers on the biofeedback device will show your temperatures have been increasing at your fingertips.

What the temperature means: Remember, warm hands are associated with relaxation while cold hands correlate with internal stress, tension, and worry. In my practice the highest temperature recorded so far on the fingertips is 95.2 degrees and the coolest is 73.2 degrees. Your starting temperature on different days, your baseline, will vary, and sometimes by a wide margin until you become more adept at recognizing what is occurring within your own body. For example, you may be unaware of stressing your jaw or neck muscles until your teeth ache or you have a headache. As you become more aware of your muscles, you will be able to interrupt the stress process and then your baseline temperatures will fluctuate less from session to session.

A general guideline for examining temperature categories is the following:

<table>
<thead>
<tr>
<th>Below 79 degrees</th>
<th>80 to 84 degrees</th>
<th>85 to 90 degrees</th>
<th>Above 90 degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>very tense,</td>
<td>mildly tense</td>
<td>mildly relaxed</td>
<td>very relaxed,</td>
</tr>
<tr>
<td>Stress focused,</td>
<td></td>
<td></td>
<td>relaxation focused,</td>
</tr>
<tr>
<td>Holding on</td>
<td></td>
<td></td>
<td>Letting go</td>
</tr>
</tbody>
</table>