Urogenital Pain

Howard Glazer, Ph.D.

Howard Glazer is a Clinical Associate Professor of Psychology in Psychiatry at Cornell University Medical College and an Associate Attending Psychologist at New York Hospital in New York City. Doctor Glazer specializes in the use of intravaginal surface electromyographic biofeedback for the diagnosis and treatment of chronic lower urogenital tract pain and sexual disorders. Doctor Glazer practices and resides in New York City.

Can you describe your biofeedback protocol?

While working with lower urogenital tract pain patients I had an increasing awareness that previous protocols used for urological and gastrointestinal disorders were not applicable to this patient population. These protocols relied on analysis of muscle amplitude, partly related to the limits of the technology in which relatively slow signal processing limited the output or feedback to amplitude related information. Within the field of biofeedback, surface electromyography still did not fully utilize the range of electrophysiological information available in the electromyographic signal. This simple approach limited our focus to disorders of resting tone and contractile amplitudes as the only dysfunctions. This is a fairly unsophisticated way of working with the muscle, as muscles are in fact much more complex than revealed by simply looking at the overall electrical amplitude generated by an area of muscle under the sensor.

Why is sampling rate such an important factor for pelvic muscle evaluation?

If you think of pelvic floor muscle rehabilitation, or the acquisition of control of that muscle, as a refined neuromuscular skill, you can think about it as similar to learning how to ride a bicycle. When you first put somebody on a bike, they're going to be quite uncontrolled. Looking at the pelvic floor muscle electromyographic signal of women with vulvovaginal pain, relative to normal, the same phenomenon of disregulation can be seen as reflected in much greater variability in the EMG signal, even though the amplitude may not vary from normal, although it did tend to be elevated. Advances in signal processing allow us to see not only signal amplitudes but also proportional variability and even the type of muscle fiber from which the variability is emerging through a mathematical signal deconstruction methodology known as a Fast Fourier Transformation to reveal a Power Density Spectral Frequency Analysis in the Infiniti system. This analysis allows us to see the distribution of the total signal amplitude coming from different frequency ranges. This, in turn, allows us to understand the electrical activity of different muscle fiber subtypes, the faster fiber types showing a higher frequency and the slower fiber types showing a lower frequency, so that the median or the middle most amplitude of the

The Expert Series of interviews with leading clinicians and researchers in the field of electromyography and biofeedback. Each interview brings the insights that the expert has acquired through their many years of research and practice to other health professionals. In this interview, Dr. Howard Glazer introduces the Glazer assessment protocol that consists of voluntary muscle contractions, with rest periods intervening. The entire muscle evaluation process takes approximately 6 minutes and the procedure is painless. After this preliminary evaluation Dr. Glazer's training method consists of a home exercise program of 20-minutes of exercises twice per day for up to 9-months. During this time, the patient is encouraged to visit their health provider for monitoring of the patient's progress every four to eight weeks for re-evaluation and exercise modification. Health professionals that Dr. Glazer works with include psychiatrists, psychologists, physical therapists, gynecologists, sex therapists, dermatologists, and other medical practitioners.

To read more about Dr. Glazer's assessment protocol and research in Chronic Lower Urogenital Tract Pain and Sexual Disorders or for a free copy of the Glazer Protocol go to:
www.vulvodynia.com/session.htm
www.vulvodynia.com/research.htm
www.bfe.org/protocol/pro11eng.htm

The Biofeedback Foundation of Europe is a non-profit organization located in the Netherlands. For more information on the BFE "Foundation for Learning" initiative, conferences, workshops, and education please visit our website www.bfe.org.

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total contraction will provide information on what type of fiber is participating in producing that amplitude. This measurement can have a great deal of relevance for the clinician. For example, in type II Stress Urinary Incontinence, acute intra-abdominal pressure such as that caused by a cough, laugh, sneeze, etc. is accompanied by involuntary urine loss. If, during coughing, the patient shows a slow fiber subset contraction of the external urethral sphincter, this may be the cause of the incontinence. The time for a cough to cause acute intra-abdominal pressure on the bladder and push out urine is approximately 200 milliseconds. The only fiber in the pelvic floor muscle that can act fast enough to create urethral closure before urine loss is a fast twitch fiber, and so if you've trained women to contract very strongly but too slowly, they've already leaked before they are able to close off the urethra. This is an example of the kind of application of electrophysiological fiber typing that's critical in the treatment of certain pelvic floor muscle disorders.

What are the costs of treatment and is it possible for patients to get a refund for the treatment costs from a public health system or from a private insurance company?

In USA some patients are able to be reimbursed for consultations and pelvic floor sEMG biofeedback with a psychologist and/or physical therapist depending on the private insurance company. The situation can be very different in Europe where all or none of the cost of treatment can be covered by national health insurance. One of the benefits of using a standardised protocol is that it provides documentation to support the use of the treatment as well as published research. In our initial study

we were able to produce a 50% rate of total remission of the vulvovaginal pain - 50% of the patients had no pain at all at the end of a two year follow-up to that study - and the total overall average self report of improvement in the total population treated in that study was approximately 83%. This remains as effective as any pharmacological or surgical intervention.

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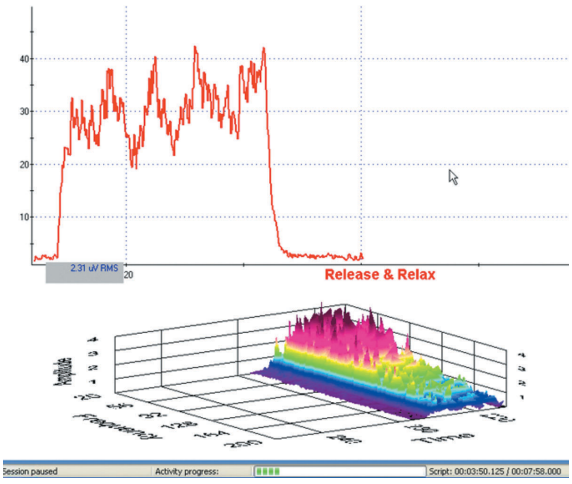
Can you describe a typical evaluation with a patient?

I encourage patients to bring their partner with them and, at the start of each evaluation, I review the patient's medical history including their sexual history. I then give a vaginal or rectal sensor and instructions on how to insert the sensor, and direct them to the washroom where alone, they insert the sensor which is simple and painless and takes only a few minutes. Fully dressed, the patient will then return to the examination room where I instruct them on using the "Glazer Evaluation Protocol". At the end of the evaluation, each patient is given a printout showing them their muscle activity to take home with them. Each patient that qualifies for home treatment is provided with a Pelvic Floor Muscle Home Training Package http://www.vulvodynia.com/htpack.htm. This package consists of a surface electromyograph home trainer (U-Control), Thought Technology Vaginal or rectal electromyographic sensor, Thought Technology unigel ground leads, and a video discussing vulvovaginal pain syndromes including demonstration of the specific use of the equipment, and a personal record keeping form. This home training package is only made available to patients following a referral from their health professional, and an in-office evaluation.

What do you think about telemedecine and the possibility of doing evaluations over the internet?

Our initial telemedecine protocols

are described in a 2002 paper which appears in the Journal of Reproductice Medicine. The paper describes how we conducted remote pelvic floor muscle surface electromyographic assessments live, in real time, over the internet between my New York City office and the Washington D.C. office of Dr. Stanley Marinoff. Data was centrally stored for retrieval and analysis of a patient's physiological and medical data at anytime, and from anywhere. The technology has advanced since then and we are now working with researchers



and clinicians around the world in an International Research and Education Project (IREP) supported by the BFE to collect data in Europe, North America and Overseas to establish a central database for different patient populations. For example, in the United Kingdom, Netherlands, Spain, Belgium, Italy, and Germany local MDs and PTs have been trained in the research protocol and can arrange for an on-line evaluation with Dr. Glazer over the internet. Patients that wish to try this technique are advised to contact a local clinic or hospital for an initial consultation to determine if they are good candidates for the Glazer protocol.

When did you first become acquainted with biofeedback?

I was a post doctoral student in Dr. Neal Miller's lab at the Rockeller University when he was conducting his ground breaking initial research in biofeedback in which he was able to demonstrate that animals could learn to voluntarily modify blood flow in order to receive positive rewards for doing so or that they could learn to increase or decrease the activity of their GI tract or other smooth muscles of the body. This was at the end of an era of psychology in America when the prominent theory was known as two process learning theory. This theory presented two processes by which we were capable of learning, one in which certain unconditioned responses become connected to stimuli which occur at the same time as the response is provoked, known as Pavlovian or associative (stimulus-stimulus) learning. The second kind of learning is stimulus-response learning, later studied and made famous by B.F. Skinner as operant conditioning, in which an animal would operate some kind of a device such as a lever or a bar in order to produce an outcome such as turning off a shock or producing food - this was contingency learning or operant conditioning or stimulus-response learning. It was believed that the visceral non-voluntarily controlled systems of the body were subject to stimulus-stimulus or Pavlovian conditioning. These included sweating, heart rate, blood pressure, gut activity - processes of smooth muscle that were believed to be not directly controllable by volition. The second type of learning, or stimulus-response learning, was believed to be under the control of voluntary muscle or striate muscle in which the animal would take an action voluntarily in order to produce a positive outcome or avoid a negative outcome. Neil Miller's research suggested that in fact there were not two separate processes by which different bodily systems learned, but in fact only one process of stimulus-response learning, and that animals could learn to bring previously believed uncontrollable systems under voluntary control with appropriate training.

What can you tell me about the work of Dr. Arnold Kegel?

In the early stages of my practice I worked closely with Dr. John Perry who had followed up on the work of Dr. Arnold Kegel in the 40's and 50's. Dr. Kegel himself used biofeedback in the form of what is known as manometry, or intravaginal pressure readings, because surface electromyography, which is much more sophisticated, was not available at the time Dr. Kegel was performing his ground breaking work. Dr. Kegel worked primarily with post partum women experiencing urinary stress incontinence; involuntary loss of urine during acute intra-abdominal episodes such as laughing, coughing, sneezing or standing. Although unknown to most clinicians prescribing "Kegel exercises", Dr. Kegel emphasized the requirement to use biofeedback to train women in the proper use of their pelvic floor muscles.

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