

Do Muscles Really Have Memory?

What is muscle memory? Do your muscles actually have memory banks? Do they have memory subroutines or memory chips? How can you change your muscle memory and learn new skills? These are the questions serious bowlers ask, and serious coaches need to be able to answer.

Each and every time you practice at the local bowling center, one of your objectives should be to create, reinforce, and further develop precise muscle memory. Hopefully when you practice, you are employing those things us coaches and instructors have pinpointed in your game, as primary liabilities. If so, then you will be strengthening your weaknesses, reformatting new muscle memory, and learning the new skill or given set of skills. If you do not have a coach to assist you with your needs assessment, I encourage you to seek out either one of us professional instructors who evaluate talent for a living, or those of us who coach at the elite level, in order to qualify your skill-based weaknesses.

Muscle and its Memory

When an active person trains at a wellness center, a gym, or a health club, he or she continuously performs movement after movement, often of the same exercise(s), in an effort to stimulate the body's adaptation process. Ultimately, the end result is to induce a physiological change such as increased levels of fitness, body composition, strength, flexibility, endurance, weight loss, blood sugar control, blood pressure control, cholesterol reduction, etc.

Exercisers rely upon the body's ability to assimilate a given activity and adapt to training. The body's ability to remember a given exercise, repetition after repetition, produces its own form of muscle memory, and adapts to the training by increasing its physical fitness in preparation for the next training session. As a body adapts to training, the subsequent changes are the form of "muscle memory". The very same concept holds true for the bowler-athlete attempting to develop his or her skill.

Muscle memory, a layman's term for neuromuscular facilitation, is a process of the neuromuscular system exhibiting a motor skill. There are two types of motor skills, fine and gross. Fine motor skills are very minute and small skills we perform with our hands such as brushing our teeth, combing our hair, or using a pencil or pen to write. Gross motor skills are those actions that require large body parts and large body movements like running, jumping, throwing (bowling), golfing, swimming, or lifting weights.

Muscle memory is fashioned over time through repetition of a given motor skill. When you first started learning to brush your teeth, comb your hair, or even drive a vehicle, you quickly realized it was not as easy as it looked. As you reinforced those movements day after day after day, your neural system learned those fine and gross motor skills to the degree that you are no longer required to think about them, but merely react and perform. Today, if you pick up your hair brush, you automatically have a certain way, motion, style, number of strokes, and amount of pressure you comb your hair without thinking about each. It just happens. That's muscle memory.

And Bowling

Learning to bowl, developing your skill, learning new skill(s), or reformatting your game is much the same way. Work on a given skill, a certain part of your game, and eventually you will adapt and make it a part of your subroutine (your approach). Practice it only every so often, or only a time or two under a coach's eye, and you will never learn it, and never facilitate the neuromuscular learning that you want. That's why I preach professional instruction and systematic rigid practice routines.

With bowling, perfect practice makes perfect sense; and imperfect practice makes for a longer road to perfection...if there really is perfection. There's no length of time to characterize the learning process. It's not a certain set point, 1,000 reps and you are there. Two weeks and you will have it. NOPE, it doesn't work like that.

ATTENTION BOWLING COACHES.....it may take your students days, weeks, months, and even years for them to fully learn certain skills. I'm not kidding. The longer, more concentrated, and more frequently they work on a given skill(s), the quicker it will be integrated into their game. For bowlers who work less often and insincerely on a given skill they are attempting to learn, it could take them years to learn; and most likely they simply won't learn it. Instead, less serious bowlers revert back to their old style, and go nowhere with their game. I've trained many local bowlers who look for that quick fix in one or two sessions, and then give up because they realize it's gonna take a little work and more than a week or two. In fact, it saddens me to see the number of bowlers who give up and go out to buy another bowling ball as though this is a cure all solution. 20 or more years ago Bill Taylor predicted some of this would come about.

ATTENTION SERIOUS BOWLER-ATHLETES.....if you want to become an elite competitive, highly skilled bowler, you will need to have your physical game assessed by a professional instructor; you need to have your practice plan, or what I

call the plan of attack, drawn up on the drawing board; and you will need to become quite serious about your practice habits.

Anticipating the length of time to acquire a skill is nearly impossible. As I train bowlers at our institute, they always learn initially that the body's learning process (neuromuscular facilitation for example) could take weeks, months, or even as long as years. You simply cannot learn Spanish or Geometry in a day, or even a week; neither can you learn to relax your armswing in that same length of time. Factor in how long you have been reinforcing those bad habits, and you can begin to see how lengthy the process becomes.

Bowlers need to exercise lots of patience when developing a new skill. They often want to bowl well so badly so quickly that they tend to hurry everything, and then become frustrated when instant results are not the immediate outcome. Very few win the lottery each week, so to do very few of you have the innate ability to pick things up with little effort, or time-on-task, a basic teacher-education tenant. We simply weren't designed that way as people. There's no such thing as instant skill acquisition. If so, I'd bottle it and sell it, and you'd all be calling me for a prescription.

A Prescription to Muscle Memory

Retraining your muscle memory is tough. It often takes long periods of time and can be frustrating. Don't look for the "feel" of something to be present quickly either, but make the process your primary focus. If the "feeling" of your new skill-based learning no longer becomes the guide or measurement of your progress, than what is? Feedback. You see, you generally cannot view your own progress since you cannot see yourself bowl. Often times the score is an erroneous reflection of your skill-based learning, and is generally always relative to a given situation and set of circumstances.

Your best feedback for skill-based development and reformatting muscle memory is your coach, someone who can direct or oversee your learning and skill acquisition; someone who can evaluate and measure your progress; someone who can decipher through all the nonsense and determine your learning parameters, capabilities, and style. That's simply your coach or trainer. Yes I advocate professional instruction for all serious bowler-athletes. Just like I advocate The Bowling-Specific Training Program and Manual to all bowlers who want to train for their sport.

Reformatting muscle memory is tough. I'm working on a couple of items in my personal game right now. And you know what, I too have a coach that I seek for guidance and support. I don't let my personal bias interrupt my learning, so using an outside objective source is your best bet.

You will most likely not have the "feeling" you are searching for immediately, therefore you must trust your practice plan, your work ethics, and your game plan, which ultimately is the only path to your goal. If you didn't trust that path to begin with, then you would not have started down it. As a precautionary measure, look for, and then try hard to avoid becoming over-anxious, overzealous, or obsessed with the end result (the outcome). Instead, work to become more process oriented.

Your mental game must manage this potential anxiety. You must practice staying focused on your goals and your path, and not focus on the outcomes. Score is not relevant, "feel" will come, and continue to work on a given skill no matter how it "feels". Think in terms of process orientation, and not achievement orientations.

In the end, there is no end, for the process never ends. There is no point that you reach where we say, "I am done." It's an evolution that never ends. Developing bowling skill is dynamic and never stops changing or evolving. Professional bowlers like Jason Couch, Jim Lord, Bill Scott, and Tom Farley continuously work on their games with their coach to become more proficient, sharper, and better. So should you.