

ATTENTION & MEMORY & TRAINING

STRESS-POINT LEARNING
ON THE TRAMPOLINE *

Ray Gottlieb, O.D., Ph.D.



* Based on the work of Robert Pepper, O.D., Lake Oswego, OR

Optometric Extension Program Foundation

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Optometry is the health care profession specifically licensed by state law to prescribe lenses, optical devices and procedures to improve human vision. Optometry has advanced vision therapy as a unique treatment modality for the development and remediation of the visual process. Effective vision therapy requires extensive understanding of:

- the effects of lenses (including prisms, filters and occluders)
- the variety of responses to the changes produced by lenses
- the various physiological aspects of the visual process
- the pervasive nature of the visual process in human behavior

As a consequence, effective vision therapy requires the supervision, direction and active involvement of the optometrist.

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Cover:
Ray Gottlieb working with
Eunmi Ko
at the Chautauqua Institution
Photo:
by Roger J. Coda

FOREWORD

I learned this training-therapy approach from optometrist Dr. Robert Pepper of Lake Oswego, Oregon, whom I met in 1973 at a three-day seminar he taught in California. I began to understand the concepts and principles he presented, and while I watched, spell-bound, as he demonstrated the exercises, my interest and fascination turned to thrill. Pepper's training was just what I needed to improve my personal learning and attention dysfunctions. I purchased a trampoline similar to the one used by Dr. Pepper as soon as I got home.

Over the next few years I attended every three- and five-day seminar Pepper taught and spent two weeks at his office in Lake Oswego assisting with his patients and receiving hours of personal training from him. I put myself through months of daily exercises in my optometry office. My attention, memory and physical coordination improved markedly. I honed my therapist skills and developed a sense of what was normal and abnormal by working with dozens of unsuspecting "guinea pigs" recruited from the restaurants, bars and coffee houses next to my office in the small college town where I practiced. When I finally felt confident, I began working with patients and was amazed at the dramatic results achieved in relatively short time.

During the next few years I taught classes and worked with students at the Learning Skills Development (LSD) program at Santa Rosa Community College and taught two afternoons each week at Sonoma State Mental Hospital, training staff psychologists and teachers to work with their adult mentally-compromised patients. I ran school vision screenings that included basic trampoline evaluations along with eye movement, focusing, binocular skill and ocular pathology screening.

In 1980 I opened an "Eye Gym" in Santa Monica where patients/members could work on vision improvement for hours daily for a fixed yearly membership fee. Many of the members were actors who applied what they'd learned on the trampoline to improve their audition and performance abilities with enthusiastic success. Later I worked with patients at a psychotherapy center, with a nationally-rated YMCA girls gymnastics team, and with piano students at the Eastman School of Music and the Chautauqua Institution music program in New York State.

Working with yourself or your children takes commitment, discipline and organization, the very attributes often lacking in children and adults with

ADD, AD(H)D, other learning problems and post brain injury. I know how difficult this is for the over-burdened parents of children with such afflictions. One advantage of this approach is that trampolines are fun.

I highly recommend that you have a comprehensive visual evaluation that emphasizes functional/behavioral vision testing. Eye testing by most eye doctors is limited to detecting ocular disease and prescribing eyeglass or contact lenses that give the clearest vision. Behavioral and neuro-developmental optometrists offer more. They also evaluate how your eyes move and coordinate with each other and with other parts of the brain to improve learning, thinking and self-expression. They apply lenses, prisms and exercise to prevent eyesight deterioration, improve visual learning, eliminate eye turns, and rehabilitate the effects of head injury.

Many of Dr. Pepper's ideas had their genesis in the fertile imaginations of the dedicated optometrists who pioneered this forward-looking approach. Poor visual skills prevent many people from achieving more at school and work. People are not aware if their visual skills are poor and that the quality of life can be improved by vision training. Brain injured patients aren't aware that vision therapy can improve their recovery. The vast majority of family doctors, pediatricians, ophthalmologists, and non-vision therapy optometrists don't understand, are ignorant of, or are prejudiced against this approach and steer their patients away from working to improve their eyesight, binocular vision, and mental/perceptual functioning.

For more information about behavioral optometry and to find a practitioner on-line, consult:

College of Optometrist in Vision Development (www.covd.org);
Optometric Extension Program (www.oep.org);
Neuro-Optometric Rehabilitation Association (www.nora.cc);
College of Syntonic Optometry (www.syntonicphototherapy.com);
Parents Active for Vision Education (www.pave.org),
and the links to other sites you will find there.

I. INTRODUCTION

The exercises presented here build attention and memory skills for everyone, regardless of age, work experience or level of education. People already functioning at high levels in sports, academics, or arts performance as well as those with learning difficulties, reading deficits, emotional problems, or physical trauma can benefit. With practice and patience, lasting changes take place deep in the brain, in the chemistry and physiology of attention.

You can practice alone or with others, daily or less often. Families can make this an after school or evening activity. Teachers can teach individual students or entire classes to attend with more power. Therapists can help patients think more clearly, improve self-confidence, and recover lost physical and mental abilities.

These exercises require active expression and lasting attention. They provide immediate feedback when attention wanders. This feedback teaches quick, full recovery of attention, leading to greater depth, finer control, greater ease and longer span of attention. Because most education and entertainment activities are passive, lapses in attention are overlooked and disregarded. Reading out loud is expressive. Silent reading is not. Read out loud and it becomes obvious when your mind wanders. But read silently and pages can go by while you daydream. The eyes move but the brain is out to lunch, and you can't remember what you've just read.

Learning at the stresspoint

Effective training requires that the difficulty of the task be appropriately matched to the learner's ability. In this work we call this matching the stresspoint. Finding this level of challenge is a basic goal, not only for these exercises, but also for selecting real tasks to optimize attention outside this training. Learning tasks done at the stresspoint force the learner to make an effort to become more alert. Success is possible, but unless the learner is able to shift the brain into a higher gear, he or she will fail. In addition, stress-point challenges reveal learning blocks and weaknesses that otherwise remain obscure. Once out in the open, they can be dealt with more directly and can be more easily overcome. Stress-point tasks are within the learners grasp, but are hard enough to require a "stretch."

Tasks that are easy do not require full attention. Easy tasks become boring. Boredom decreases alertness, slows thought, and shortens attention span. Lapses of attention won't be noticed because the learner succeeds in spite

of them. If there are no errors, there is no feedback for wandering attention. Without feedback, there is no recovery of attention. And, if there is no recovery, there can be no lasting increase in brainpower.

On the other hand, overly difficult tasks bring multiple errors, loss of control, poor motivation, and loss of meaningful feedback necessary to improve attention. The result is anxiety, agitation, impatience, fear, anger, apprehension, frustration, impulsiveness, and self-destructive behavior—all counterproductive to the processes we are trying to build.

Working at a suitable degree of challenge improves attention, memory and learning, and brings the pleasure of effective learning with less effort. High-level learning is a special state of consciousness. *Attention and Memory Training* teaches this state of consciousness and makes it available to the learner.

Demonstration exercise

The following simple demonstration is the essence of this *Attention and Memory Training* approach: Clap your hands in a steady rhythm, about one clap per second or slightly faster. Can you keep the beat? If not, use a metronome or get a helper to clap with you. When using a trampoline for this exercise, clap at the bottom of each bounce. When you can sustain a steady clap rhythm, read these numbers out loud in time with your claps.

7 4 3 9 5 6 2 9 4 7 2 3 8 6 1 4

Too easy or too hard? Some of you may succeed easily on the first try, but others will have to work at it. Search for your stresspoint, a challenge difficulty that stretches your ability, one that takes about five tries to get right. Start with an easy challenge and make it more difficult until you make an error. Work at this level until you achieve strong, repeatable success. Your goal is ease, fluency and flow.

If you can't get fluent success after several attempts, make the task easier. Shorten it by using fewer digits (eight or less) or slow it down by naming the numbers on every other bounce. For a harder task try one or more of the following: increase the speed, read it backwards, go forwards and back without stopping, say all the numbers but clap only on the odd numbers, add one to each number or just to the odd or even numbers, or add the numbers saying the sum as you go.

Try to identify the weak links in your attention. Can you catch your errors, or does someone else have to point them out? Do you repeat the same error over and over again? Do you reverse the order of some numbers or call out wrong numbers? Does internal chatter—having thoughts such as, “This is

too easy” or “I’ll never make it through” — easily distract you? Do you falter at the start or lose focus just before the end? Can you bring your attention back when your mind wanders, or do you tighten up, close down, lose your place, get anxious and stop? Look for clues to understanding your learning patterns and blocks. This process provides an opportunity for self-directed change.

Do you take mistakes in your stride, as a stimulus to work better to succeed the next time? Or, does making an error frustrate you and cause subsequent performance to suffer or make you want to quit trying? In this work when the challenge exceeds your ability, you will fail. Everyone fails but some people have failure phobia or post-failure failure syndrome. Anxiety about failing shrinks attention, bringing more failure. It is not such a big deal to make mistakes. The real mistake is picking too hard a task, thinking it will be easy. Learn to think of errors as merely feedback to help you learn to recover your attention. Repeated mistakes are part of the process, not evidence that you are a failure. Accepting your mistakes is a step toward success.

Problems with timing

Learning problems, reading blocks, or poor performance in sports or the arts are often due to faults in the brain’s timing mechanisms. Attention suffers when timing is off. If the mind moves faster than the eyes, for example, reading suffers. Rhythmic learning organizes the brain, quiets the mind, and coordinates the senses.

The trampoline is a wonderful tool for rhythmic learning. Jumping coordinates the body and senses in time. Every bone and neuron in your body feels the impact of the bounce. The eyes move and see movement; the ears hear it; and the sensory brain, timed precisely with the pulses, allows new information to flow in with natural ease.

Trampolines come in round, square or rectangular shapes. Some are just a few inches high, while others are two, four or even more feet off the ground. Mini (3’-4’ in diameter), intermediate (about 6’) and large (10’ and larger) sizes are all useful for this training. The mini and some intermediate sizes can be used indoors. If a trampoline is not available, use a metronome, bouncing ball, jump rope or treadmill. Various rhythm learning devices will be described in Chapter IV.

Learning with less effort

This approach improves physical and mental flexibility, fluency, and fortitude. Flexibility allows you to change course and move ahead, fully engaged, in a new direction without missing a beat. Fluency is the ability to

proceed with ease, with full meaning and expression. Fortitude includes the ability to engage in difficult challenges with positive, sustained energy for a successful conclusion.

The above traits are those of a master. Mastery need not come only after a lifetime of dedication to an art or craft. It can and should be the goal of each learning experience at all ages and degrees of challenge.

This book is about mastery and not merely competence in learning and performing. In today's world mastery gets little attention. Students—the good ones—are expected to become competent in a subject. Not trained to go beyond competence, their brains expect to improve only that far and no further.

Most young children, for example, learn to walk, and most become good at walking on regular surfaces such as a flat floor or sidewalk. But that does not mean they are competent walkers. They must be given the opportunity to learn to walk across uneven landscapes and up and down stairs. Most do, but that is usually as far as it goes these days. Kids used to learn to walk on railroad tracks or on tops of walls. A few girls take it a step farther and train themselves to perform on a balance beam, but not many. Hardly anyone learns to master walking on a tightrope. Many more would do it if it occurred to them, or if tightrope walking became the norm. Some kids would learn with relative ease without help, and others would require a coach—a really good coach. To walk a tightrope requires flexibility, fluency and fortitude—traits that help elevate the brain's potential to achieve its greatest power. Unfortunately, this level of education is rare. The vast majority of us underachieve because of this, and hidden weaknesses in body and brain coordination remain hidden and uncorrected. Highly developed mental and physical faculties are less vulnerable to and recover better from brain injury and age-related brain deterioration. Training at this level should begin early in childhood and should continue throughout life.

Tightrope walking is an example of training an everyday perceptual/motor skill to a high level of mastery. There are hundreds and thousands of attention and memory skills that are only partially trained or are never developed at all. We stop short with our children and with ourselves. If we began training our brains to reach for mastery levels very early in life, if we trained for flexibility, fluency and fortitude, then mastery would become the standard, the expected endpoint.

Let's take another example. I work with children and adults who never learn the alphabet beyond a rudimentary level. They are unsure of some letters and have to sing the ABC song to get through the alphabet. A boy

learning the ABC's who stops when he's just able to recite it once without error can answer, "Yes," to the question, "Can I do it?" But he may not really *know* it, so, why wouldn't we expect his teachers to go on working with him to make sure he really does know it?

The five questions

How do we know when we've achieved true mastery? Dr. Robert Pepper, the optometrist who developed the principles and exercises described here, poses five questions that one must affirm in order to be confident that a learning challenge has been mastered.

1. Can I do it?
2. Can I do it well?
3. For how long can I do it well?
4. Can I accept change?
5. Can I be creative and expressive as I do it?

Let's take the example of learning a piece of music on the piano. "Yes, I can do it," implies that I can play all the all notes as they are written without error more or less at the right time. Yes, I can get through it and that does count for something, but not everything. The piece may not sound like beautiful music, and my audience might have the impression that I'll crash at any moment. For many people, "I can do it." is their endpoint. They assume: "I did it correctly once and now I'm finished and can do something else." Or "I did my homework; it's not perfect but now I'm through." In school, as in much of society, this, unfortunately, is the prevailing attitude.

Can I do it well?

Others may continue to work on the piece beyond this point. It's up to speed and the notes vary in dynamic range, getting louder and softer with each crescendo and diminuendo, the phrases flow with appropriate legato and staccato and the left and right hands coordinate together in time. No question about it, it's a job well done. But if the performer takes the attitude, "I've done it really well once, so I'm finished and ready for Carnegie Hall," he or she might be in for a big disappointment. Just because you can do something really well once is no guarantee that you can do it again.

For how long can I do it well?

Can you play it well three times in a row? Playing a piece of music perfectly just one time, even if no one else ever played it better, still doesn't confirm mastery. One must be able to play it well every time—alone in the practice room, at the next lesson in front of the teacher, at the dress rehearsal, and at the performance before a discriminating audience. When students do not ask this question, they are selling themselves short.

Can I accept change?

All pianos are unique. The black keys on some pianos are tapered, slender and high above the white keys, while on others they are wide and set low. Some pianos have a quick, lively action and others are sluggish. Often the tuning is not quite right. Environments are different as well. Keys become slippery with sweat in hot and humid weather; fingers get cold in freezing rooms; some halls echo and others swallow the sound; audience members cough, converse, and noisily unwrap candies; and watches and cell phones announce themselves. Pianists who learn to play a piece just one way are not fully ready for the big time. They court disaster if they fail to learn to play the music several different ways (faster/slower, louder/softer, mellow/flamboyant) and in several different environments on more than one piano.

Can I be creative and expressive as I do it?

The best artists rarely play the same way twice. They take chances, try out new ideas, and sometimes make mistakes. For some famous performers, wrong notes are opportunities for recovering into creative expression. Some music students, once they learn a piece of music, bore themselves rehearsing it the same way over and over again. Instead of improving the performance, each run through diminishes their spontaneity and sense of wonder. They don't explore to discover new depths of meaning or imagine new ways to express the feelings in the music or try to make the sound more beautiful. They are not inspired to stretch beyond their limits. Reaching to express a new idea that occurs in the heat of the moment risks failure, but taking the risk moves performance from effort to art. This fifth level of success—creative mastery—can be the goal even at the beginning stages of learning.

EXAMPLES AND ILLUSTRATIONS

An AD(H)D fifth grader masters his lesson

Here is an example of how these principles helped an AD(H)D boy I once worked with. His mother called to ask if I could see him for an extra training session. She told me that he was completing the fifth grade and was chosen to be the narrator for a play that was a traditional part of his school graduation program. His job was to announce the names of the 13 American colonies in the order that their representatives signed the Declaration of Independence. Could I help him memorize the list?

I agreed to try. The next week we worked using my large trampoline and a chalkboard on which I wrote the names of the new states. I coached him until he could say each in the correct order as he bounced. He was to call out the names at the bottoms of the bounces. At first it was necessary to sim-

plify by listing only the first four states. It was also necessary to slow the pace by having him say the names on every third bounce. Soon he could name all 13 states at this speed. Of course he really didn't know them yet, but he could get through the list. In a few minutes he proved to me and to himself that he could do this perfectly three times in a row. After a little more work, he was able to do it well with only one bounce between each name, and finally he succeeded on every bounce. To make him really secure and confident, I told him that I was going to try to distract him by yelling words and questions as he read through the list. He was to ignore me and stay with the task to the end with no errors. At first I was successful in distracting him, but very soon he could succeed every time no matter what I tried.

Now I erased one of the names from the list and asked him to supply the missing name from memory as he bounced through the sequence. He was successful and we continued working as I erased more and more of the words until he could confidently recite the whole list forwards and backwards every time he attempted it. He could do it well for as long as he wanted. He was happy and his mother was too, but I wasn't. He felt finished and wanted to quit and work on something else. But he needed to be able to answer affirmatively the next question "Can I accept change?" As I said, we were using my big trampoline. It was outside and stood about five feet above the ground. The rate of bouncing was slow. I wanted to see if he could do it on my little rebounder trampoline that would bounce him twice as often.

His performance fell apart at the increased speed and his confidence evaporated. He had thought he knew it perfectly and had been ready to call it a day. Now his self-confidence was shaken and he was on the verge of frustration and avoidance. I reassured him that initial failure at changing to a fast speed was perfectly normal. Now he was working in a changed situation, and when he could adapt to changes, his new learning would be much stronger, and his chances of doing a perfect narration at the graduation would be much greater. To avoid frustrating him I rewrote the list on the board. He quickly progressed, learning faster than before. Soon he could recite backwards and forwards through the list with no errors on either the big or the small trampoline. He was almost done. There was only one more step. I had him spell his name by alternating between saying the letters and the colonies. His first and last names plus a silent bounce between totaled 12 letters, the perfect number of letters to fit between the 13 colonies on the list. Now I was confident that he would succeed with flying colors at his graduation. Not only had he learned this list, a task he thought would be impossible for him to achieve, but he became a better learner in general be-

cause his brain had been challenged to attain mastery. With my coaching he had developed the fortitude to work for fluency and flexibility. A major goal of this approach is for you to work to help yourself or your student(s) to internalize this process until it becomes the natural and expected endpoint of learning.

Allen masters his pogo stick

Allen was a first grader who had difficulty with attention. When asked a question, any question, he would roll up his eyes, drop open his mouth and flop back his head in total silence. He did this even if you didn't ask him a question, sometimes several times a minute. He was in academic and social trouble at school and a failure at sports. He was one of my very first trampoline patients. He made good progress and after two months of working with these techniques, I wanted to know if we were having an impact outside of the office. His mom told me she thought there was a change and the next week came in all excited with the following story:

The previous year he had gotten a pogo stick for his birthday. He really liked it but was frustrated by his failure to learn how to work it. Every few weeks he would pull it out, try a few times, and then throw it down in frustration. Two days before as she cooked dinner, she looked out the window and saw him struggling with it. A half hour later she called to him to come in to dinner. He always came right away when she called him, but not this time. The family waited for a few minutes, decided to leave him alone, and started dinner without him. Fifteen minutes later he came in and said that he had mastered the pogo stick. They all were thrilled. Several months later he joined his class basketball and soccer teams and later was chosen to be captain of both of them. He was now excelling at his schoolwork as well.

Don't rush to get through all the exercises

I recall a young boy who had to be driven two hours each way to and from my office. His mother had heard of me from another of my patients, and although she had taken him to one of my colleagues for vision therapy in her hometown, she wasn't satisfied with her son's progress. I asked if he'd worked with the trampoline, and she described exercises that were very similar to mine. I tried to dissuade them from coming because I was concerned that four hours of driving twice a week would do more harm than the therapy would do good. But she insisted so I agreed to a few weeks' trial. If my work was the same as he'd had before, we could complete the training. At the end of the trial she was enthusiastic about what was happening to her son and wanted to continue. She said that the difference between my work and that of the prior therapist was that he seemed to have a list of tasks to get through as quickly as possible. As soon as he finished one

exercise, they were on to the next. I, on the other hand, stayed with the same task and modified and adapted it to the emerging needs of her son. She said that he was making wonderful progress, worth every minute of the long commute.

Be aware of progress

Many people have difficulty seeing their own progress. Obvious improvements in coordination, speed, attention, accuracy, and recovery totally escape not only their own awareness, but, in the case of children, also their parents'. I remember an angry mother of a patient I had been working with for about three weeks. I could tell the moment she entered the training room of my office that she was upset. She held a paper tightly clenched in her fist and bolted across the large room steaming with anger. "Look at this sheet," she hissed. "Your work with my son is a waste of time." From my perception he was making a ton of progress. It was his math test and she was upset because he had failed it. I read the paper. The date on the test was before he had started working with me. I pointed this out to the irate lady and then turned to the boy and asked him if he had noticed any improvements at school. "Yes," he said, "they don't pick me last for sports teams anymore." The mother didn't get the significance of this development.

I also remember a young woman who had been injured by a spinal cord operation two years earlier. Because her arms and legs were rigidly paralyzed she couldn't write, cook, or drive, and she had lost custody of her two children. She could walk, but very slowly, with a cane. Initial therapy included relaxing and manipulating her stiff limbs to increase their strength and range of movement. I saw her for hourly sessions twice a week. She responded amazingly well and after just four weeks I was able to start working with her on the trampoline. I had to hold her at first as we moved together in gentle up and down movements. Her balance and strength increased rapidly and soon she was able jump on her own with no support. She had learned the gross body movement patterns described in this book and we were getting ready for her to attempt a drop down to her knees and back up to her feet. Although my excitement about her progress grew with every treatment, I was amazed by how little she seemed to notice. I would ask her at the start of every treatment about improvements in her life outside the therapy room. "No," she would say, "Nothing has changed."

Finally, at about six or seven weeks into the therapy, she told me that she had gotten better. "Why do you say this?" I asked. She told me that several friends had remarked that she now was able to answer the phone and the doorbell in a normal amount of time. Before it had taken 40 or 50 rings for her to answer the phone, and now she picked up in just three or four. So she

guessed that she was getting better. Interesting that *she* hadn't noticed the improvement. Her friends had to tell her.

Later in the same session she told me that her balance was getting better, too. "Why do you say that?" I asked again. She told me that she had gone shopping with a friend and bought a painting that she fell in love with. After her friend had unloaded and put away her other purchases, she was left alone with the un-hung painting. She couldn't wait to put it up on the wall and so got a hammer and nail and, standing on a stool, managed to pound the nail into the wall. "So I think my balance is getting better," she repeated. "Which hand did you use for the hammer?" I asked. She'd used her right. "Don't you remember that a few weeks ago you couldn't even move your right hand more than two inches from your side?" I asked. She said that she hadn't thought about it. "How come you didn't come in today all excited to tell me?" I asked. She said that once the nail was in, she didn't have the ability to lift up the painting to its place above the sofa and so she counted the experience as a failure.

We needed a way to measure her progress each time she came in, so I took her to a blank wall in the room and asked her to hold a piece of chalk in her better, left hand. "Reach up as high as you can and make a mark on this wall," I instructed. She made a line slightly above her head. With the right hand, after several attempts in which she dropped the chalk, she managed to make a mark at about the level of her hips. I wrote the date on the wall next to each mark. Every time she came for a session, I had her make a new mark to show her progress. Usually the marks rose one or two inches higher for her right and slightly higher each time for her left. The progress was remarkable and soon both hands could reach nearly the same distance above her head. And after another month or two she was able to write, drive and regain custody of her kids.

Most people adapt to changes, but they often change without noticing. For example, they aren't aware if their eyesight starts getting progressively worse. Children have to be told by the school nurse that their vision is deteriorating, and only when they put on their new prescription lenses do they notice the leaves on the trees.

The third chapter in this book is entitled, "Attention and Memory Profile." It will help you record initial observations. Progress will be apparent even if you record just gross observations without getting into performance details. You can also note strong and weak areas of performance. This is useful to help organize self-improvement efforts. Learning that you lose attention at a particular time in your learning process should teach you to become more alert just when you need to be. If coordination, frustration,

avoidance, self-direction, and/or lack of attention are problems for you, emphasize those aspects of this work. If you find that you are especially weak in one performance area such as numbers or distinguishing left from right, you know to work on those in order to bring them up.

I know what a chore it may seem to make such recordings, and it is not absolutely necessary to do so. I also know that one must guard against the tendency to want to do a perfect job. The perfectionist pressure makes the process more difficult and less appealing. So lighten up or skip it. It's better to do just the exercises without recording them than to not do them because recording seems too difficult or frustrating.

“One-time Charley”

Some people are avoiders; they assume that if they can't learn something on their first attempt, they have failed and won't try again. They don't realize that masters didn't start as high performers, that their achievements took time and effort, and that they had to keep on working through their failures. I call these people “One-time Charleys.” As young children, these One-time Charleys were so quick at learning new things that they were easily successful on the first try. They walked, climbed stairs, learned to dress and tie their shoes with such ease that they never had to develop the fortitude part of their brain. They don't know how to persevere, so if they fail on the first try of something new, they get frustrated, give up, and never try a second time.

Post-failure failure syndrome

Many people have “post-failure failure syndrome.” They are so disrupted by making an error that they make subsequent errors. Their attention falls victim to negative emotions. I recall a study describing this. Two groups of students took a spelling test. One was a group of average or above average students. The other group was comprised of below average learners. First, an easy spelling test was administered. The spelling words for each group were selected to be easy enough so that all the students in both groups would miss only 10% of them. The poor learners got easier words than the other students. As predicted, members of each group got 90% correct. This was followed by a second, more difficult test wherein 90% of the words would be misspelled. Again the results were as predicted. Then a third test similar to the first was given. The normal group achieved the expected 90% correct, but the below-average group spelled only 10% of the words correctly. Their failure on the second test effected similar failure on the third test made up of easy words.

Post-traumatic functional blindness

Some people are affected by a kind of post-traumatic blindness syndrome. They perform well until something happens that causes them to become confused. Once confused, they become more confused and seem unable to recover. They become slightly incoherent or dissociated, like someone just regaining consciousness after a deep sleep or a head trauma. They seem a bit confused about the present situation—can't remember details about where they've been, where they are, where they are going, why they are there, what time it is, or what something or someone is called. They have difficulty taking in new information. They can look, but they block out visual details or fail to see the context. Sometimes this is very obvious, but usually it's subtle. For some it's an everyday experience related to spelling, maps, or math concepts. Most affected people are not aware of their condition.

Some of the piano students I work with have this problem. Here is how it affects their learning. Many of them assume that in learning a new piece of music, they should start at the beginning and play through the whole piece without looking it over first. They plunge into it every time in the same way, without a second thought, and in spite of past failures. It doesn't occur to them that they might take a different approach to the task. The impulse to go for broke, the dream of playing beautiful music, the anxious but unrealistic optimism that this time it will be easy, drives them forward with high expectations and great energy.

At first they make great progress learning measure after measure until, invariably, two things happen: fatigue and shock. Giddy with confidence at their initial success they are ambushed by an especially difficult part of the music. The shock of confusion drains their confidence and energy. They become functionally blind to the patterns and details of the written music. Each new attempt to play it submerges them deeper in failure and helplessness. This dissociated, less coherent state is perpetuated by a kind of post-traumatic stress, a phobia that lurks in this place in the music that prevents them from seeing the details. From then on they are vulnerable to this shock and prone to its aftereffects.

Most of them are only vaguely conscious of this. They leave the practice room exhausted and filled with frustrated self-contempt. An hour and 45 minutes of precious practice time will not have been merely wasted, but they will have succeeded in further embedding this negative pattern. This scenario happens so often that it feels normal. They know they have problems, but until this dynamic is pointed out to them, they are at a loss to explain it. And they have no clue about how to correct it.

Their *Attention and Memory Training* lessons reveal the same pattern. They start with great energy and enthusiasm, quickly and accurately working their way to more complex tasks. Seduced by early success, lulled by a sense of confidence, their attention relaxes just as the challenge gets harder. Then they make an unexpected error. This shocks them and the first error is followed by more errors, frustration, and a reversal of performance. They fail to remember the instruction, become blind to the details, and they fail at tasks they could easily do just moments before. They fail to notice the fractured state of their attention, and they seem helpless to prevent or improve the situation. When I tell them my observations, some of them emphatically reject the description or deny that it affects their piano practice. But invariably they come back to the next lesson in full agreement. “You were exactly right. Five out of six times I got so frustrated with myself that I wasted most of my practice sessions.”

Reversing post-failure failure becomes a major focus of the training sessions with these pianists. Part of their brain expects a negative spiral a few minutes after starting. Each time this happens, the habit is reinforced. The aim is to prevent this from happening. The longer their attention loss can be delayed, the longer optimal focus can be prolonged—say for 30 or 60 minutes rather than the habitual 15, the weaker the habit becomes. Students are coached to find a strategy for learning complex tasks without falling into frustration and avoidance. Unless they recognize the syndrome early enough to recover from it, they will continue the pattern, and their learning and self-esteem will suffer. Preventing the pattern from recurring changes the brain.

The basic strategy is to start with easy tasks and to not rush into harder tasks before mastering all five questions described earlier. As the tasks are made more complex, I’m careful to insure that alertness and confidence stay intact. Eventually, when the task difficulty just exceeds their ability, I warn students in advance that they may make an error this time, and advise them to examine the details of the exercise before attempting to do it. I ask them to find the difficult places where they will be most likely to make a mistake. Some of them can’t do this on their own. They can’t seem to comprehend what I’m asking them to do. I have to show them and ask whether they know what to do when they get to a certain part. Then I have them rehearse and master that part before taking on the whole task. If they make an error, I teach them to further simplify by slowing or shortening the task until they can get it perfectly. I then carefully guide them until they can easily perform this and then finally, the whole task.

Sometimes, in spite of all my best coaching to insure against it, they make an error, and start to lose their edge. I must quickly shift away from my intended path to help them regain their clarity before it's too late for them to recover. We take a break, tell a story, and go back to an easy task or a completely different activity until they are out of danger.

In the end, I want them to recognize early signs and take a break or lower the task demand *before* they lose control. I ask the student to estimate the difficulty of any new challenge, to notice the state of their alertness and mental clarity, and to be alert for subtle shifts in their energy following unsuccessful attempts. As they learn to fine tune this awareness, they learn to feel the changes sooner, stop immediately, and switch to an easier task with a high chance of success. Once they regain confidence and attention, they work back to more complex tasks. In this way they gain the ability to self-direct their learning and prevent the loss of attention, frustration and post-failure failure.

Recovery is the key to the *Attention and Memory Training* approach. Some people are naturally good at it. If they slip on a patch of ice, for example, they quickly scramble to recover their balance. Others are not good at it; they tighten up, lose control, and invariably fall on even minor slips. The good news is that recovery of attention is a trainable skill.

Changing the pattern

A patient at Sonoma State Mental Hospital in California is a case in point. I was teaching staff members there how to apply these trampoline techniques to the mentally challenged patients who lived there. Ralph was 28 years old and, although he could understand much of what was said to him, he did not speak except for a few words such as "sleep," "eat," "pee" and "Ralph."

Ralph was unable to bounce at first, so I had him lie face down on the trampoline while I stood above him and bounced him up and down holding a belt loop of his pants. Then I taught him to bounce on his hands and knees, then kneeling on the trampoline bed, and finally standing and jumping.

He had a very slow learning curve and it took a long time for him to learn any task on the trampoline. This was typical of most of the patients at the hospital. What was unusual about him, though, was that when he did finally succeed, his success lasted for only four jumps. On the fifth jump he would lose confidence and concentration, his performance would fall apart, and we would have to start again from the beginning. He took just as long to relearn a procedure each time, and then he would lose it again after the fourth bounce. The task might be for him to jump on the trampoline fac-

ing a particular direction, or to bounce on his knees facing me. After 10 minutes of great effort he would finally succeed. No matter what I tried to have him do—one jump, two, three, and finally after four correct jumps he would fall apart.

By the time I'd worked with Ralph for three 20-minute sessions, his learning pattern was quite apparent to everyone in the class. He would fall apart on the fifth bounce and then feel defeated and embarrassed in his failure.

At the fourth session I tried a new strategy. My goal was to stop his pattern at all costs by letting him perform the first, second and the third bounce, but stop him right before he lost his coherence. The first task was for him to bounce on his knees facing the window. Finally he started doing it and I stopped him mid bounce three and said, "Now stand up and jump facing the blackboard." Each time I stopped him while his attention was still intact, he learned the next task faster than usual.

I had been trying to teach him to clap his hands each time he bounced, but when I asked him to clap he would stop jumping, make a funny face, hold his hands up to the side of his head, and make several quick claps. Even when I demonstrated how I wanted him to do it, the result was the same. But now, after stopping him on the third jump four times in a row, when I asked him to clap on each bounce just as I was doing, his facial expression changed, and, clap, clap, clap, he started clapping in time with his jumps. He proceeded to clap right through the fifth bounce and kept on. At this point I grabbed a pile of cards with pictures on them and, as he bounced and clapped, I showed him one and asked, "Ralph, what's this?"

"Ice cream cone," he answered. I showed him another and another. "Elephant," and then "Umbrella," he named each picture correctly as he kept bouncing and clapping. After five or six pictures I stopped him, ending the session at this high point of his success. It was quite a thrilling experience for all of us and probably the most exciting training experience of my career. Ralph became verbal for the first time in his life after that experience. Two weeks later he was singing a duet at the hospital's Christmas party. I never saw him again as a patient because there were so many other patients for me to work with.

The story exemplifies two principles of this approach: 1) ending on a high note while the patient is full of self-confidence, and 2) preventing negative learning pattern from recurring. This paid off for Ralph and it might for you or your children.

How long does this take?

This is a natural question, but impossible to answer. It depends on the needs of the person and on his or her goals. For some this becomes part of their long-term daily fitness. For example, I worked with a man who complained of fuzzy thinking and poor ability to organize his architecture business. We worked together for three months in 1992. He was very enthusiastic and wanted to know how to continue working by himself. I had him make a set of 50 square magnetized cards with pictures composed of a colored arrow, one of several large or small colored shapes, a colored single-digit number, and a colored background. These he arranged on his refrigerator as a maze where each arrow pointed to the next card in the sequence. While jumping rope, he named the color, shape, arrow direction and/or number on each card in various combinations. He rearranged the cards in new maze patterns, and never ran out of possible exercises.

Thirteen years later, he exercises daily while jumping rope in his kitchen. Every year he sends me a Christmas card expressing his gratitude for how clear and fresh his mind is from this workout, and how much more organized and directed he is in his business.

You may not be willing to stick to a fitness discipline but still want to work to overcome a specific difficulty as soon as possible. If you don't seem to be succeeding, when do you decide to give up? Again, it's hard to know.

Let me give another example. Rick, a young boy with learning difficulties, was one of several boys and girls who came to me for therapy after doing poorly on a functional vision screening I had conducted at their school. The others progressed rapidly with great success after about 12 one-hour sessions. Letters of appreciation with descriptions of positive changes soon arrived from their parents and teachers; but not from Rick's. After four months, his attention remained poor, and any improvements he might have gained in one session were not retained in the next. I was concerned about his lack of progress and the mounting costs in time and money. I scheduled a serious discussion about this with his parents and suggested that they consider stopping the therapy. They declined. They told me that they had tried several other approaches with Rick and that my work seemed so appropriate to his needs that they wanted to continue. So we went on meeting two hours a week, always trying to find a better strategy or exercise and hoping for a breakthrough. Rick seemed oblivious to all of this. He just did what we asked with little concern or enthusiasm and without signs of frustration. About two months later I heard a subtle change in his voice that turned out to be the first sign of a very rapid and quite inspiring improvement in his mental ability, general awareness, and behavior that took place over the

next three weeks. I was so grateful that we hadn't stopped the work prematurely.

Rick taught me an important lesson about making inappropriate assumptions by failing to consider individual differences. Prognosis is never easy and the only way to know if a particular therapy will work for sure is to try it long enough to give it a real chance.

II. PRINCIPLES OF ATTENTION AND MEMORY TRAINING

The following principles are important for anyone wishing to coach themselves or others toward optimal learning states.

Attention vs. concentration

To concentrate means to shrink or make denser. Many people concentrate to focus their attention. They hold their breath, tighten their jaw, brow, fists, neck and pelvis, and unconsciously reduce visual awareness to a small centralized area. After a while fatigue sets in, attention wanders, and the small details or larger context drop from awareness.

Attention, rather than concentration, is what we are after here. We want the following:

1. Flowing attention—the mental and visual efficiency to locate, grasp and absorb information accurately and easily, then to let go and be ready for the next bit of information, and to be able to repeat the process over and over again, accurately, smoothly and quickly.
2. Flexible attention—the ability to focus on details without losing the larger context.
3. Anticipation—the ability to read ahead and be ready for change without anxiety.
4. Stamina—the ability and energy to sustain attention for long periods despite distraction.

Working with a partner

Working with a partner or helper is more fun than working alone and brings greater motivation to sustain the drive for self-improvement. Children and adults often need a parent, teacher, friend or coach to keep them on track. The ideal is when your partner is willing to switch roles with you and work on the exercises with you as the helper. (Although some exercises do require someone else to call out commands, partners are not required for most of these exercises. Sometimes the best breakthroughs come while working alone. Don't exempt yourself because you have no partner.)

Partners can be very helpful. Many people aren't sure whether or not they actually performed an exercise perfectly with no errors. In fact, some are certain that they failed even though they succeeded easily, and others as-

sume they performed perfectly even when they didn't. It's like waking up from a dream and not recalling whether or not you were dreaming or what you were dreaming. A scene experienced so vividly just seconds before is totally cut from memory. This apparent dissociation and memory loss between one state of conscious experience and the next shows up in this work as a poor ability to recover attention. Having a helper point out missed errors helps you to become more aware of them and leads to your becoming more self-aware of errors. Without self-awareness of your mistakes, you'll never learn to recover your attention quickly enough to prevent them. You'll read more about recovery of attention later in this chapter.

Another advantage of having a partner is to help insure that you really understand and are correctly following instructions when attempting a new or especially complex variation of an exercise.

The downside of having a partner is that you may feel inhibited or anxious about exposing your weaknesses to someone else. It's a kind of everyday stage fright. People feel enough embarrassment when they witness their own shortfalls. The upside is that this presents a perfect opportunity to work through shyness and performance fears.

A helper's attitude and tone of voice are very important. A negative choice of words or misplaced emphasis on errors can squelch chances for success. Impatience and blame can cut the mental legs out from under performance. Kindness and understanding can boost attention and learning. Both you and your partner should use the following hints:

1. Develop an atmosphere for success

"I failed again, what's wrong with me?" It's easy to be your own worst enemy. The challenge is to become your own best coach. Give yourself credit for any accomplishment. Don't pass over or undermine your successes no matter how small. Telling yourself, "It should have been easier," or "It took me too long," is inappropriate. Instead, frame the outcome in positive terms. It's not black and white, perfection or failure. Notice your learning strengths and then look squarely at your mistakes. Reward yourself when you are successful. Tell yourself, "I got it 90% correct, almost perfect," or "I did it better that time."

When you do achieve real success, train yourself to take the time to allow a sense of accomplishment to fill your body and lift your spirits. Memorize the feeling. Work to remember your successes and don't overemphasize failures. This is an important physiological training.

2. Warm up

You may be a slow starter. If so, don't plunge into the most difficult

challenges right away. Learn to warm up on easy tasks before attempting harder ones. Give yourself enough time. Don't expect to start off at full speed. Get a running start to prepare your brain for the tough challenges. Actors, dancers, musicians, writers and artists warm up to get their juices flowing. Even audiences have to be warmed up. Speakers often start off with a story or joke to warm up themselves as well as their audiences. Audience-attended TV shows have professional audience "warmer uppers." Nor do athletes make cold starts. They take the time to warm up mentally as well as physically before competing. Singers warm their vocal apparatuses and musicians, their fingers. Unfortunately, academic or mentally centered workers rarely think about clearing their mental throats and lungs. Teachers often launch into a challenging math lesson immediately after a recess or lunch break. Take heed if you are a slow starter; pay attention and learn to organize your work with respect to your needs.

3. Work for flow

Work for flow, look for flow, and reward yourself for flow behavior. Flow is the goal. In flow the mind becomes clear, quiet, and free from physical and emotional distraction. Suddenly the exercise becomes easy, what was a struggle is now effortless. In the flow state, time slows, perception widens, and movement seems to guide itself. Coordination, timing, attention, and voice quality become graceful, even with complex tasks performed at high speed. You can feel this in yourself and see it in others.

The first flow experiences are often brief and fleeting. Flow feels so effortless at first, that you stop in mid-task because you feel out of control, like something is unfamiliar and wrong. This can't be right, it feels too easy. With practice, however, flow becomes automatic, strong and long-lasting. A new, powerful self learns to take charge—one that is more alive and self-assured. Your goal is to access this state whenever possible.

How to find the best exercise for flow

Flow is best achieved at the stresspoint, when success is possible but requires a stretch. Don't pick tasks that are too difficult. Many people are not aware that their expectations far exceed their ability. They don't even think about what they're going to do before they act. Impulsively they choose tasks that are too difficult, and when they are overwhelmed by the impossibility of the challenge, they blame themselves for being inferior and stupid. For some people the only real learning block is in choosing inappropriate tasks.

Look at your own behavior. If you find that you fall into this pattern, make sure to discipline yourself to estimate challenges before starting them. Everyone is different. Don't judge yourself according to some idealized, untested expectation that you should be able to do what everyone else does. Learn how to break big challenges into simpler sub-tasks as a way to increase your attention and mental energy. Learn to recover mental clarity by being alert for the first signs of frustration and fatigue, reconsider your options, and take appropriate action. It's your choice.

In *Attention and Memory Training* be sure to start with exercises that are well within your grasp. Gradually add length, speed, decisions, or movements (as described below) until performance falters. Work at this or a slightly less difficult task until you can succeed easily and with confidence. Then do the same task but with different targets. Work until you can "sightread" new material perfectly on the first try. Then add clapping, physical coordination, or other multitasking activities to make the new skill effortless.

Tasks must have clear goals, immediate feedback, and provide a sense of control over the outcome so that you feel rewarded by the increased effort and concentration. Resist the temptation to move through levels of difficulty as quickly as possible. Work until you have truly mastered the task at hand. The best time to try a more difficult task is when you are alert and flowing, not when you are tired and unhappy with your progress.

4. Avoid fatigue and frustration

Be sensitive to changes in alertness and energy as you practice. Expect to backslide when you are fatigued, ill or emotionally distracted. It doesn't pay to push your energy beyond the point where your brain shuts down and performance suffers. Nothing crushes confidence like trying harder and failing anyway. Frustration and helplessness can become a habit. The goal of the game is to have flow become your habit.

Notice when your energy first starts to shift. It's normal and expected for you to cycle in and out of these higher learning states. Each attempt is not always more successful than the one before, each day not always better than yesterday. So be flexible.

Learn to think of your errors not as mistakes or failures, but as friends or gifts. They tell you to turn up your mental energy, take a break or change your story.

Strategies for preventing fatigue and frustration

When you find yourself blocking and losing your edge, avoid beating yourself up. Instead try one of these strategies for preventing fatigue and frustration:

- Start off the session by warming up on an exercise you already know.
- Stop the session while you are successful, when you are in flow.
- Take calming breaks *before* you lose your cool.
- Make the exercise shorter (fewer items) or slower (add extra bounces).
- Regain flow by working on easier, previously mastered tasks.
- Do not strain.

Trying too hard fragments attention, memory and body coordination. Watch for these cues to over-efforting: fisted hands, clenched jaw, tight eyes, muddled words, poor timing, unusual perceptual errors, and wild arm circles and uncontrolled jumps on the trampoline.

Recovering from bad habits

The more clearly you see how your attention works, without judgment, the greater is your power to improve. Your blocks will reveal themselves as you work. Notice if you habitually over-effort, freeze with anxiety, lose your place, speed-up or slow-down uncontrollably or if you hold your breath. Do you often misunderstand or forget instructions? Is your problem in starting an exercise or in keeping full attention once you are into it? Can you complete the task or does your attention wander just before the end? Do you get so frustrated that subsequent performance suffers? Do you expect too much of yourself and choose tasks beyond your skill level?

These behaviors are often so automatic that awareness comes too late to stop errors. Denial and fear keep them in place. Objective experience, seeing a reflex as it happens, gives you a special opportunity to stop bad habits before they take you over.

The recovery reflex

The recovery of attention is a main goal in this work. The first step in recovery is to catch yourself making a mistake. When you do, proceed as follows:

1. Stop immediately.
2. Recall what you did wrong.
3. Describe what you should have done.
4. Start again from the beginning.

When your mind wanders, you lose direct awareness of what you are doing, what you just did, or what you are about to do. Essentially, you go unconscious (dissociate from conscious awareness for a moment), and this causes you to make a mistake. If you are really unconscious you lose the what, where, when and how of your experience. There are degrees of unconsciousness. You can make a mistake and know you are making the mistake, but you just can't stop yourself. Or you can make a mistake with no awareness of the fact and can't believe it even if someone tells you. You can also make a mistake and be aware that you made one, but not know what the mistake was.

When you can clearly recall the details of your mistake, awareness comes into unconscious moments and creates a bridge into dissociated states. It's like learning to remember your dreams. You get better at it. At first you can't remember if you were dreaming. Then you are aware of dreaming but can't remember the dream. Finally images and then details of the story are clearly present in your memory. Catching and remembering errors may be difficult at first, but ultimately you'll get better at it and eventually recovery will become so quick and complete that your attention returns before it leaves. You'll automatically prevent errors before they occur.

There are several steps in learning the recovery reflex. At first you may commit errors without realizing anything was wrong. You may think you did it perfectly and be totally unaware that you left a letter or entire word out of the sequence. Having someone there to monitor your performance is necessary at this point. If you must work alone, you might need to record or video yourself to catch unconscious errors.

Next you sense an error but stop several beats later with a vague awareness of something having gone wrong but you can't say what. With practice you'll be able to stop immediately and recall precisely what happened.

Next you'll catch yourself making the error but won't be able to stop it. At the next phase, you recover quickly enough to correct the mistake as it occurs, but you can't recover from the effort to recover. The effort is so disruptive that you can't sustain your attention, and you fall apart on the next beat. Recovery soon becomes quick and strong enough for a clumsy success. And finally you reach the stage of "precovery." You become aware before attention falters, recover automatically, and perform with confidence and grace. You feel your brain wake up as time disappears into an ever-present now.

Recovery is a major tool and a major thrill. The stronger the recovery, the better the attention. Recovery of attention is like having an unlimited atten-

tion span. If your recovery fails, you know you have chosen a task that is too demanding. Use the information to choose an appropriate challenge and you'll become an efficient learner. You'll develop recovery skills at work, at school and throughout the day automatically.

You can apply the concept of "beyond attention" to the recovery of intention. When you become distracted or disappointed while pursuing a project or goal, do you turn yourself around and make a clear-headed attempt to continue? Or do you go off in some half-conscious pattern of escape?

Timing

The clapping and reading exercises described here are to be timed precisely. Unerring rhythm is the key to training attention and flow. Each pulse is a little deadline that requires bringing enough attention to do the right thing at the right time, again and again. On the trampoline, the bottom of each bounce marks the timing for everything you do.

You may be unaware of slowing down or speeding up as you work. Some people do not know they are slightly ahead of or behind the pulse. Exact timing is at the heart of this work, so get someone to help. (See dialogue.)

Voice

Your voice exposes inner stress and anxiety. Vocal quality changes when you are in trouble. Speech becomes softer and more muddled. Changing to a confident, open and distinct voice promotes alertness, perception and performance. Speaking more loudly, clearly and succinctly, and sharpening your timing gets you into flow. A friend can help by reading along with you, clearly and loudly, as you work. (See dialogue.)

Distraction

Distraction can be used as a technique to strengthen attention. It forces more powerful attention on the task as a defense against being pulled away. The more compelling the distraction, the stronger your self-directed attention must be. Resisting distraction is an important mental skill. A partner is necessary for using the distraction technique unless you can be creative with a tape recorder.

When you succeed at an exercise but know you haven't fully mastered it, play the distraction game. Have your helper say, "Try it again, but this time I am going to try to make you make a mistake by distracting you." As you go through the exercise, your helper yells out letters, numbers, questions and comments to try to attract your attention away from the material. Try to resist these distractions. Start easy at first but make the distractions louder

and more demanding as you gain attentive power. Distraction is a powerful tool to strengthen attention and flexibility.

Impulsiveness control

Impulsiveness is one symptom of poor attention. Impulsiveness makes us act or react too early. This manifests itself as poor attention to details, leaving out important information, or rushing off to work without an important paper or lunch box. Some people enter into new situations without understanding the big picture of what they are getting into. They rush ahead, stop listening, make assumptions about what they are supposed to do, and are surprised when they fail to perform correctly.

Control bounces are extra bounces which are added to tasks. They interrupt the habit of rushing to finish a task. Instead, they require waiting with poise and self-control before taking action. For example, controls are used in left-right exercises where a direction is called out (e.g. "Left") on the first bounce; the next bounce is silent followed by a 90° (left) turn. The impulsive person will turn immediately after the "Left" without waiting for the silent bounce. In sentence work, the words are spelled in time to the jumps with a silent bounce on the spaces between words. Impulsive people go from word to word, leaving out the spaces. If you can't wait for the control bounce, you're impulsive to some degree and are likely to skip over important details in tasks at work and home.

Physical coordination and balance

Physical coordination and balance set the foundation for eye movements and visual learning. The goal here is to develop consistency and grace when performing complex movement patterns. Undeveloped motor skills provide an unstable platform for perception and attention, causing mental miscues, strained visual fixation, inaccurate eye movements, and poor control of fine movements (as in handwriting).

Start training sessions with five or 10 minutes of movement/coordination exercises. This not only trains coordination and balance, but also stimulates the brain to greater alertness. Begin with 10 or 20 movements you can already do well. Add more complexity (see exercises in the next chapter) and work to get 10 perfect movement patterns in a row. Be aware of any improvement and then go on to other types of tasks.

Clear goals

Setting goals is very important. It helps to lengthen attention and intention span because it organizes and motivates us just as deadlines help us get the job done. Goals must be flexible. Rigid adherence to an arbitrary goal may lead to frustration. If you notice a sustained fall in performance, you might

take a break and then lower the goal, say from 10 correct responses to five or three. The goal might be to work for five minutes without wasting time between attempts. It might be to try some task for three attempts before giving up. Often the goal is 10 correct responses in a row but sometimes it might be three or five or 20 responses in a row with no mistakes. Once you succeed at doing a task, you might try to do it three times in a row.

Reviewing past work

Start new sessions by reviewing previous exercises. This gives an opportunity to assess how well previous learning has been retained. Most people are even better at a task at the start of the next session than they were at the end of the last. It's as if the seeds sown during the session sprout new pathways during that night's sleep. This is not always the case, however, and to the extent that previous exercises must be relearned, *Attention and Memory Training* will likely take more sessions. On the other hand, learning retention may improve along with other aspects of attention and learning. Brain trauma patients often have problems with retention and require repetition of previous learning.

Working with children

A child may have to work for many minutes or even a good part of the hour to achieve a pre-set goal, but you can praise steady progress and avoid frustration or de-motivation.

Some children need intermediate goals before attempting to get 10 out of 10. You may need to start by shooting for two in a row, then try for three. When they succeed, be sure to give strong praise, and then try for three again. Now change to a goal of five perfect responses with no errors. Say, "OK, that's three correct out of three tries, three out of three." And if one misses on four, say, "Oh, oh, that's a miss so now we go back to zero out of zero. See if you can get five out of five this time." When she succeeds, see if she can do five out of five again. Can she get five of five three times in a row? If so, you can change the goal to 10 out of 10. Remember, you are working to increase self-esteem and to decrease frustration, so modify the challenge accordingly, and don't let any opportunity for praise go by. But you must stay real.

Ask the child if he thinks he will be able to succeed on the first try. Tell him that you don't always give tasks that people will get right the first time, that you don't expect him to be successful right away, and that you think it will take him five tries. Ask him to estimate how many attempts it will take to get it right. You want to get a child into the habit of evaluating new chal-

lenges before he attempts them so that he can organize his task into clear-cut, appropriate goals that motivate rather than frustrate him.

Remember to stop before frustration and fatigue interfere. Move to a different exercise and come back to this one another day.

Working with brain injury

This work can produce amazing improvements in brain-injured patients following stroke, trauma or tumor. Recovering from brain injury is not always a straightforward path. Each of these people has a unique set of problems requiring an individual course of training, and I encourage you to seek the help of a behavioral/neuro-rehabilitation optometrist. Rehabilitation after brain injury is not straightforward but is an adventure, a voyage of discoveries. Diagnosis is extremely complex. Symptoms are not easily predicted on the basis of the severity of injury. Recovery is influenced by the attention and memory abilities achieved previous to the accident. It also has a strong dependence on the emotional and environmental support available. Often the gains take a long time and exercises have to be repeated for many sessions before changes become strong and lasting.

These individuals are easily fatigued, confused, and anxious, and recovery from these states, once evoked, is not always easy. So be sure to keep the exercises simple and always be ready to make them even simpler in order to prevent confusion, fatigue and anxiety. Help them to become aware of their anxiety, to understand how it undermines their attention and abilities, and encourage them to take a break, close their eyes, breathe, and calm themselves before continuing. I often tell a story about an experience I had that relates to them in order to engage and connect with them on a personal level. In time they develop control and better recovery skills.

Another thing: they often have difficulty changing from one activity to another. So once they're successful using one chart, be sure to work with different charts or targets at the same level before adding complexity. Have them change quickly between various previously mastered exercises and the present one. Work to teach them the flexibility to change quickly and easily between activities.

III. ATTENTION AND MEMORY PROFILE

The Attention and Memory Profile can be used as a yardstick for measuring the progress of training. Without these initial observations, authentic improvement may go unnoticed. Future performance will erase the memory of present problems. Since the time and energy commitment for this work is motivated by the improvement seen, this baseline assessment will prove useful.

Don't be afraid of evaluating either your performance or your child's performance. Although you may lack professional training, you can see whether movements are integrated or clumsy, timing is accurate or off, and you can count the number of tries it takes to succeed on a particular task. There are no absolutes in this evaluation, and no one expects a perfect job.

Spend one session or several on a specific exercise. Complete just part of the evaluation if you can't do it all. Even a few observations are useful. Use your judgment about showing the evaluation to children but, never judge them or use their weak areas as a club.

The first part of the profile has to do with specific exercises described in this book and this functions to remind you of the baseline or beginning skill levels. It's so easy to forget how far you have come. The second part looks at general behaviors and it helps to highlight the areas that need the most work. If a description fits, circle it. If you have other comments or observations, you can write them here or keep a notebook.

RECORDING SPECIFIC EXERCISES

PHYSICAL COORDINATION AND BALANCE EXERCISES

Circle your observations and describe:

Able to do 10:

Standard arm circles	after	_____ tries	___ not able
Parallel arm circles	after	_____ tries	___ not able
Alternate feet patterns	after	_____ tries	___ not able
Feet together/apart	after	_____ tries	___ not able
Feet front to back	after	_____ tries	___ not able
Charleston step	after	_____ tries	___ not able

Comments:

CLAPPING EXERCISES

Circle your observations and descriptions:

Able to:

Clap every time after _____ tries ___ not able

Every other time after _____ tries ___ not able

Every third time after _____ tries ___ not able

Possible observations might be: doesn't understand even when shown; physically difficult or impossible due to lack of self-awareness, loss of balance, anxiety.

Timing observations might be: consistently early, late, speeds up, slows down, erratic, right on the bounce.

Other observations might be: can look you in the eye and clap; can answer simple questions such as, What is the name of your school? Your teacher's name? Your phone number?, etc., while clapping; can look you in the eye and clap rhythms.

Comments:

MAPS

Circle your observations and describe:

Left/right 10 times after _____ tries ___ not able

Self-direct L/R 10 times after _____ tries ___ not able

External animal map 10 times
after _____ tries ___ not able

Comments:

COUNTING

Circle your findings and describe:

Can count forwards after _____ tries ___ not able

Can count backwards after _____ tries ___ not able

Can leave out four after _____ tries ___ not able

Can clap on four after _____ tries ___ not able

Comments:

MEOW-AND-BARK PICTURE CHART

Circle your findings and describe:

Able to complete one line after _____ tries ___ not able

Able to complete whole chart after _____ tries ___ not able

Comments:

LETTER CHART

Circle your observations and describe:

Able to complete one line after _____ tries ___ not able

Able to complete whole chart after _____ tries ___ not able

Whole chart silent on vowels after _____ tries ___ not able

Comments:

WORDS, SENTENCES AND PARAGRAPHS

Circle your observations and describe:

Highest level obtained: short word; longer word; two words; short sentence, long sentence, paragraph

For highest level, able to:

Read forwards after _____ tries ___ not able

Read backwards after _____ tries ___ not able

Silent vowels after _____ tries ___ not able

Silent vowels, clap spaces after _____ tries ___ not able

Reverses direction after clap for ten; if less how many? _____

Self-directed reverse for ten; if less how many? _____

First and last letter, word, sentence, paragraph
after _____ tries ___ not able

Comment:

RECORDING GENERAL OBSERVATIONS

Please circle any behavior that applies. Make an overall assessment of one to five. If you have an observation not listed, write a description.

As you work with yourself or your child, notice habitual behaviors such as straining, excess anxiety, loss of place, speeding up or slowing down uncontrollably. Are instructions misunderstood or easily forgotten? Is there a problem at the start of an exercise or in keeping going? Does attention stay intact through the end of the task or does it wander just before the end? Does subsequent learning suffer because of frustration due to earlier failure?

Look back at these observations from time to time to remind yourself of areas of progress and areas to concentrate on.

Communication/Understanding

Rate how well instructions are understood. How many times do they have to be repeated? Is physical demonstration needed to understand the instruction? Note whether or not the person is self-aware of misunderstanding rather than having to be told. Does he ask appropriate questions, articulate questions easily, understand the purpose/goals of this work, or forget instruction?

NEEDS WORK 1 _____ 2 _____ 3 _____ 4 _____ 5 STRONG

Comments:

Physical coordination

CENTERING: loses balance; lands all over the surface; tends toward front, back, left, right edge; improves; has good centering.

HANDS: has fisted hands; left, right or both hands are awkward, turn in (palms not facing front); fingers are apart; has good hand posture.

HAND CIRCLES: left, right, both circles are distorted; left or right hand's circle is smaller; left or right shoulder is high; makes good circles, is graceful rather than awkward.

LEFT/RIGHT SIDE WEAKNESS: left/right is consistently poorer at standard, parallel circles, one foot jumping, complex feet movements; one side moves while the other stays fixed.

UNEQUAL WEIGHT DISTRIBUTION: tends toward left/right side; leans forward, back; has even stance.

FEET: look awkward; can't point; can't straighten; left/right/both turn(s) in/out.

BODY TWISTS: twists left/right while jumping; twists only on parallel arm circles.

HEAD: tilts toward left or right shoulder, front, back; is centered.

EYES: look down, look everywhere but straight ahead; is visually engaged with task; movements interfere with visual attention; vision tasks interfere with movements.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Attention dynamics

Can't get the attention focused at the start of an attempt; starts well and then loses steam; loss of attention just before the end; how many items in a row before attention loss? _____

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Performance consistency

Erratic, unpredictable; improves with practice; attention stronger/poorer after break; two steps forward, one step back.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Flexibility

Difficulty changing from one task to another; difficulty doing the same task with different words, letters.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Timing and speed

Slows down, speeds up uncontrollably, stops under stress, consistently too early, too late, upper speed limit, lower limit; can work best only at one speed vs. a range of speeds; does poorly at fast/slow speeds; hand circles not synchronized with jump (bottom of circle not at bottom of bounce); circle speed not coordinated with jump.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Distractibility

Is distracted by internal self-talk, other people, objects, emotions; can easily be made to lose attention; vs. stays focused.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Recovery

Has fast, slow or no recovery, is confused when loses place, has to stop and start over from the beginning vs. recovers quickly, can regain the flow state.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Intention span

Can't stay on one task until he has a positive success; easily defeated by mistakes and wants to quit working altogether; begs to try a new task before completing the old; works until succeeds.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Energy and stamina

Loses energy level in the first, second, third or fourth quarter of the session; recovers after short break, vs. cannot continue once fatigued.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Flow

Reaches flow state; appears confident, stays in control, and enjoys the experience, vs. over/under controlled, can't achieve flow.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Mistakes

Sees own mistakes vs. needs to be shown.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Negative emotion

Allows anxiety, helplessness, frustration, anger, depression, denial, mistrust, or avoidance to lead to subsequent reduction of ability, vs. remains mentally clear in spite of errors.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comment:

Self-direction

Falls apart when calling own commands vs. when helper calls commands; makes the same mistake over and over, vs. can easily reverse errors and bring improvements into performance.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Memory/memorization

Has difficulty remembering instructions; leaves out items; forgets details; can remember only one instruction at a time, vs. can perform without looking at words or charts.

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comment:

Retention

Is able/not able to retain a previously learned level of performance later in the same session and from one session to subsequent sessions .

NEEDS WORK 1 ___ 2 ___ 3 ___ 4 ___ 5 STRONG

Comments:

Summary of Stress-point Behaviors

	<i>Needs Work</i>	1	2	3	4	5	<i>Strong</i>
<i>Physical coordination</i>							
<i>Attention dynamics</i>							
<i>Performance consistency</i>							
<i>Flexibility</i>							
<i>Timing and speed</i>							
<i>Distractibility</i>							
<i>Recovery</i>							
<i>Intention span</i>							
<i>Energy and stamina</i>							
<i>Flow</i>							
<i>Mistakes</i>							
<i>Negative emotion</i>							
<i>Self direction</i>							
<i>Memory/memorization</i>							
<i>Retention</i>							

Use this graph to focus emphasis on improving weak learning behaviors. Re-evaluate periodically/every 10 sessions. Work on weak areas by being alert to negative behaviors as soon as they occur. The goal is to train self-awareness in order to avoid letting a negative behavior take over. The sooner one becomes aware, the easier is the recovery. Look for reversal of performance when subsequent attempts bring worsening results. Then stop and immediately change to a similar but easier task or a different, already mastered task—or take a break to diffuse the mood and recover energy and clarity.

IV. RHYTHMIC LEARNING TOOLS

The brain is a symphony of rhythmic interplay. Efficient learning depends upon a huge number of events happening in widely separated areas throughout the brain. In addition, they must be perfectly synchronized in time. The brain works like a gate. Data flows in easily when the gate is open but not when it's closed. In reading, for example, the eyes jump from point to point; they fix for a fraction of a second on one bit of text before jumping to the next. In this process, the brain gate opens and closes, synchronized with and dependent upon efficient and accurate eye movements. The brain gate opens only on the fixations between jumps. If the eye movements are awkward, or inaccurate or if they must strain to avoid double or blurred vision, the timing of these movements becomes unpredictable. The brain gate openings become imprecise, and meaning is blocked from memory. The rhythmic attention exercises in this book work because they improve brain and eye timing.

As in the number exercise in the first chapter (page 2), the beats of the tempo tell you when to call out the next item or make the next move. Trampoline, metronome, ball and bed bouncing, treadmill, and jump ropes can be used as rhythmic learning aids.

In the end, you should also learn to keep your own beat with no external device. A lot of people have poor control of timing. Their speech or actions accelerate as they focus on a task. The harder and longer they focus, the faster they push. Without being aware of it, they charge ahead of their ability to pay attention. This frustrates them and they don't notice their frustration. The harder they try, the more they fail. They don't realize they are speeding. And they are not aware that they bang, bang, bang their heads against the same brick wall in their struggle to learn. Others slow down unconsciously and learn to avoid frustration by avoiding tasks that will challenge and expand their ability. In either case they seem helpless to improve their learning skills.

Even when they use a trampoline or other rhythm aid, they may still speed up or slow down. If they wait for the next beat, act too soon, or change rhythm spontaneously, they should be aware of it. Fusing action with a strong timing beat can be a vital key to changing their brain function for better attention and memory. They should work to improve timing awareness and the ability to sustain a steady tempo and search to determine the optimal speed for best performance. Some people have a single best speed that never changes. Their performance suffers when attempting to go faster

or slower. The optimal speed for other individuals is not consistent, but changes from session to session—or even from minute to minute in the same session. Good learners are able to work well over a wide range of speeds, can keep a steady tempo, and will automatically adjust their tempo to adapt as learning demands become easier and more complex. Others have to be taught how to do this.

The trampoline is the best device for this work. The eyes see the movement, the ears hear it, and every cell, organ, and nerve in the body is stimulated by the bounces. The entire body participates in awareness. The person becomes the beat. If a trampoline is not available the devices described below can substitute.

Using a metronome

The advantages of a metronome are low cost, portability, and a wide range of tempos. Music stores sell metronomes. Most are electronic. Some are credit card sized. Some have an earphone jack for privacy. The idea, of course, is to do the exercises by calling out the numbers or words in time with the beats.

Start the attention exercises using a metronome by testing a range of tempos to determine which is the easiest for you. Work the exercise at your easiest speed (usually between one and one and one-half beats per second (60-90 per minute). If an exercise is too difficult, slow the tempo. Then, work to master the task at your easiest speed until you can positively answer the five questions mentioned in the first chapter (page 5). Then try the same exercise at other speeds until you find your stresspoint. Add or subtract five or 10 beats per minute, try the exercise again, and adjust the tempo until you find your threshold of competence, the tempo where your performance just begins to break down. Practice at this speed. Work for mastery and flow-state learning on the task before increasing or decreasing the rate to extend your range. Make sure to achieve ease and mastery before moving on. Don't take on too much too soon. Be sensitive. Avoid frustration. Breathe.

Metronome exercises can be done sitting or standing. You can bend your knees to the beat if standing or tap your toes if sitting. You can clap your hands together or on your thighs. For more complexity, combine toe tapping and thigh slapping in various ways:

- Tap your toes and slap your thighs in time to the metronome. Hit both feet and both hands at the same time on each beat.
- Alternate a simultaneous pattern by slapping your left hand on your left thigh and tapping your left foot on the first beat and slapping your right hand on the right thigh on the next beat.

- Alternate in a cross pattern by simultaneously tapping your left foot and slapping your right hand on one beat and then doing the opposite (left hand and right foot) on the next.
- Go around in a circle pattern by tapping and slapping on subsequent beats: right hand, left hand, left foot, right foot, and back to your right hand and so on, around again. Also go around in the opposite direction: left then right hand; right foot then left foot, etc.
- Go around the circle in one direction, then reverse direction on the second right-hand tap. After two complete circles (at the right hand) again reverse direction. Choose a different hand or foot. You can have a helper call, "Reverse." If doing an exercise, designate a particular item to signal the point to start reversing - for example, at the eye on the doghouse chart, on numbers with a five on the number chart, etc.
- Try finger exercises by tapping individual fingers in sequence: pinky, ring, middle, index finger and thumb then back in reverse order. Have one hand mirror the other moving the pinky to thumb and back, or move them in parallel starting with the pinky on one hand and the thumb on the other.

A vision exercise with the metronome

The following exercises train a relaxed, meditative state and improve the speed, accuracy and ease of eye movements. Success depends on awareness of breathing, blinking, and letting tension dissolve into effortless attention and flowing motion.

Set the metronome at one beat per second. Select two targets located on a horizontal line three feet apart, about 10 feet from you. Sit or stand comfortably, move your eyes left and right, from target to target, timing your eye movements with the beats of the metronome. Do *not* hold your breath. Breathe normally—not necessarily on the beat. Blink frequently. Do *not* stare unblinkingly as you move your eyes. Continue for 10 minutes at a time. Try it for longer periods.

Let yourself move into a state of dynamic relaxation as you meditate on the movement. Be aware of how anxiety and tension come and go. They change on their own; don't try to *force anxiety* to go away. Instead, relax your eyes, forehead, neck, shoulders, hands, feet, mouth, jaw and pelvic area. This practice brings awareness of how you tense up when trying to do things. Soon you will notice how this same pattern of tensions takes over

many times each day—at the computer and while reading, driving, watching or listening. Paying attention to how the sensation of tension works in your daily activities will eventually train you to more and more easily and naturally let go of unconscious tension.

Variations

- Select targets located vertically or diagonally, or use a clock face or the star chart.
- Vary the distance between targets. Larger eye movements and very small eye movements are more difficult to perform. Gradually develop skills for smaller target separation (1", 1/2", 1/4", 1/8", and even smaller).
- Develop meditation eye movements at a variety of speeds (slow as well as fast). Be sure to continue the practice at each speed until you are able to reach a relaxed, meditative state. Gradually learn to relax at faster and faster speeds (some people reach nearly four beats per second).
- Holding a book at your reading distance, move your eyes back and forth between the first and last letter on each line, or look from word to word across a line as in reading. (Do not try to take in information; the purpose is to develop eye movement skill at the reading distance and to reduce anxiety responses during reading. This is accomplished by blinking and breathing and being aware of tension).

There are many variations of this basic exercise. They can be performed throughout the day, even without a metronome. The purpose is to reduce anxiety and tension while training visual skills. Your eyes, body and mind will become more flexible, and you will process information with greater ease.

Ball bouncing and juggling

The bounce of the ball can become the beat for the exercises. Tennis, high-bounce, soccer, basketball, or big body gym balls all bounce, but at different speeds. Use one hand at a time or both hands together. Add complexity by alternating between left and right hands on subsequent bounces or in more complex patterns such as two rights for every left. Work for ease, control and stamina.

First, you must learn to bounce a ball without looking at it. Build up this skill before trying the exercises in Chapter 6. When you are ready to try the attention and memory exercises, you will call out the items as the ball hits

the floor. You want to have successes early on, otherwise you will give up in frustration. If you stay with it you will soon gain a high level of proficiency.

For variety, add the right and left hand patterns. Two or more people can work together by bouncing the ball between them. Each person reads the next symbol in the sequence when he or she bounces the ball.

Jugglers will enjoy adding attention and memory exercises to their practice. Juggling will become even smoother and less demanding of primary attention if you include the attention exercises in your practicing. You can change tempo by saying items on every second or third toss or on each toss. Start easy with just a few items and then work your way to the full chart.

Jumping rope

Adding attention and memory tasks to jump-rope aerobics adds a whole new dimension to this exercise. Call out letters or numbers in time with the jumps. Try to keep the speed consistent with each attempt, but you can change speed or add jumps to make the exercise easier or more difficult.

Treadmill

Many of my patients use training charts to practice *Attention and Memory Training* as part of their workout at the gym. Some use magazine text as targets. Name the item on each step or skip steps to slow the action.

Bed bouncing

You can bounce yourself by sitting on the edge or corner of a bed (one without a foot board). Some couches or padded chairs also work. Keep both feet on the floor, push up and let yourself drop back onto the bed.

Self-directed rhythm

When you are not in the flow state, timing errors can derail your efforts. Do you speed up when concentrating your efforts? Many people do. Some drivers are surprised to find themselves driving at 85 or 90 miles per hour after some minutes of deep thought. Accurate sustained timing on the trampoline or other pacing device is very difficult for some people, and without external cues, most have difficulty. Many people can't find a steady pace at all. Others can under ordinary circumstances, but when they meet cognitive or performance challenges, their rhythm falls apart. Under pressure or anxiety, part of the mind can speed up with or without the other parts knowing. Working in a group you may be aware that you are going twice as fast as everyone else, but when working alone you may think you are going too slowly. Trying harder makes many people speed up and lose control, especially when under pressure to get things done or when anxious about the re-

sult. Self-directed rhythm exercises make us more aware and thus better able to hold our speed at a reasonable self-directed, flow-state pace.

Use the exercises as prescribed but without the trampoline. Can you keep a steady pace or do you speed up as you go? Learn to go faster and slower than your favored tempo. Sometimes going more slowly is harder than going faster.

Trampoline

Trampolines bring movement, balance and timing into training. Jumping is aerobic, healthy and fun. Mini tramps, queen bed-sized tramps and Olympic tramps are all useful. The smaller ones are faster, the larger ones slower but more demanding of balance and grace. Using both large and small ones trains greater flexibility. Trampoline exercises to improve physical coordination and balance will be described in the next section.

If you are out of shape you might tire after just a minute or two. Pause to catch your breath, then continue working. After several minutes you will get a second wind. With steady practice, even for short sessions, your aerobic and muscular stamina will improve along with your attention and memory. Don't rush yourself. Take time to get used to jumping safely before starting the attention exercises.

To use the trampoline with the attention tasks described in the next chapter, you will name letters, numbers, words and other target items. Say these at the lowest point of the bounce. Have a helper observe whether or not your words are timed exactly with the bottom of the bounce. Speak in a loud, clear voice all the way through an exercise. Don't forget the hand posture and circles described in the next section. Too many arm circles at first may result in sore arm and shoulder muscles the next day. It's OK to work without arm circles but try to do more each time.

Find your appropriate difficulty by starting on just a single line of print. If this is easy, try two, three, then more. If one line is too difficult try just three or four numbers or letters and work your way up to a whole line. Any task can be made easier by adding a silent bounce between each letter to slow down the action. For more difficulty, add clap rhythms and foot patterns described in the next chapter. Before moving to harder tasks, work to experience flow, grace in action, and alertness along with a sense of ease.

V. TRAMPOLINE EXERCISES TO IMPROVE PHYSICAL COORDINATION, BALANCE AND TIMING

Goal: 20 sets without losing coordination

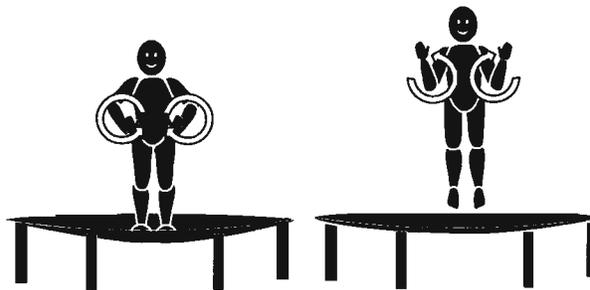
Keep the following principles in mind when using the trampoline.

Centering

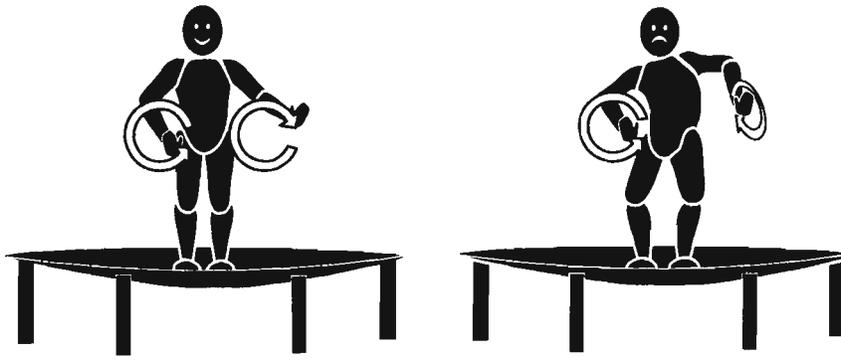
Make sure to jump in the middle of the trampoline. Inconsistent jumping—always landing at different places on the trampoline bed—indicates poor balance or contracted space awareness. Uncontrolled movement toward the front, back, left, or right edges indicate body imbalance or poor coordination. Centering should automatically improve with practice. If not, train yourself by drawing a 2' chalk circle on the trampoline bed and working to keep within the circle as you work on the various exercises. Have a helper tell you if you jump outside the line. Draw smaller circles as centering improves. Draw one near the front edge and jump until you can keep inside. Then try the sides and back edge. Add these to the attention and memory exercises.

Standard hand/arm circles

As you bounce, keep your hands open, fingers together and straight up, and turn your palms to face away from you. Extend your arms (but do not lock them) and make circles, chest high, as if both palms were flat against a smooth wall in front of you. Move from the shoulders through the arms with no rotation at the wrists or elbows. The circles should be about 1-1.5 feet in diame-



Trampoline with hands going in standard circles. Circles are round, similar in size and position and coordinated to reach down at the bottom of the jump and up at the top of the jump.



Bouncing with standard hand circles. Circles are equal in size and have good position, but timing is NOT correct.

Bouncing with poorly executed standard circles. Left hand circle is small and distorted with awkward difference in shoulder height.

ter and round, with both hands moving equally.

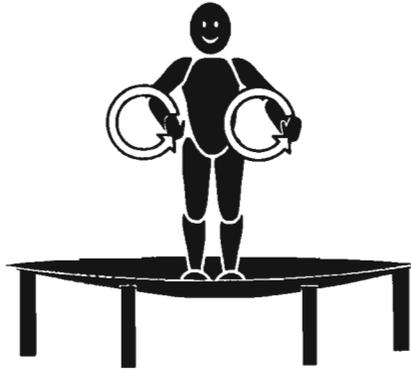
Circle your right arm clockwise and your left counterclockwise. The hands should nearly touch as they move up the midline, separate toward the top, stay apart as they go down, and come toward the midline at the bottom.

The hands should be lowest at the bottom of each bounce and move up to reinforce the upward rebound. Timing problems appear as delays or inconsistencies in coordinating hand position with bouncing. Exact timing is very important so if the timing is off, spend a little time in each session to work for precision. Later when doing the attention exercises, the items are to be called out when the bounces and the circles are at their lowest point. Timing is essential and very difficult to be sure of on your own, so get a helper or videotape yourself for feedback.

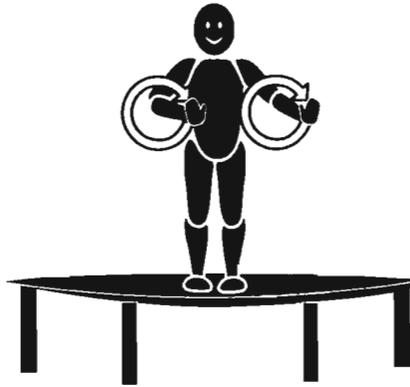
Parallel arm circles

Both arms are to rotate in the same direction. Instead of up the middle, they'll circle clockwise or counter-clockwise in parallel, separated by 3"-5" (not touching). Imagine the two wheels of a bicycle moving along, with both wheels turning in the same direction. Face palms forward with fingers extended and together and the hands should be lowest at the bottom of each bounce as before. Work toward roundness and equal ease in counterclockwise and clockwise rotation. One arm may move more easily while

A.



B.



Parallel arm circles to the left and to the right. Circles are similar in size, position and timing. Body is symmetrical in both circles to the right (A) and to the left (B).

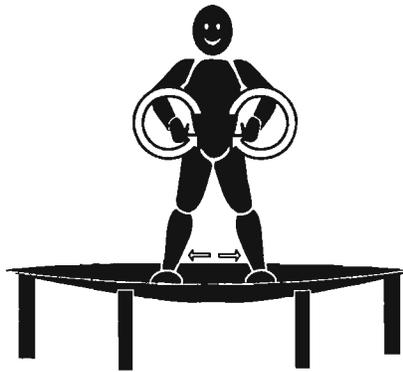
the other makes awkward or bizarre movements, or the circle size for each hand might differ significantly. Practice until the circles are fluid for 20 repetitions in each direction.

The chances are that you will not do parallel circles well at first. Your body might twist or arms flex uncontrollably. The circles on one or both sides might be distorted. You may be able to be successful doing them in one direction only. You can help yourself by using a short dowel (paper towel cardboard). Hold it near each end by the fingertips of both hands with thumbs below so that the palms face down. After practicing without the dowel, try again without it. You may need several sessions, so practice with and without the dowel in each direction each time you work. By and by, coordination will come and with it, a new feeling of centeredness. This advanced maneuver may be impossible for young children and very difficult at any age. Don't expect immediate success and don't make a fuss or show impatience.

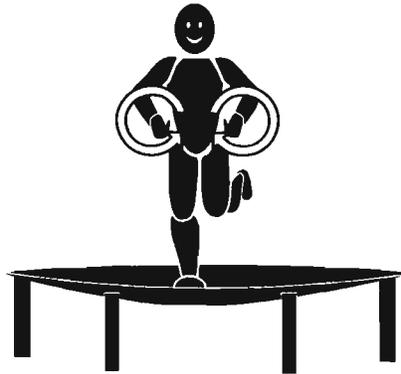
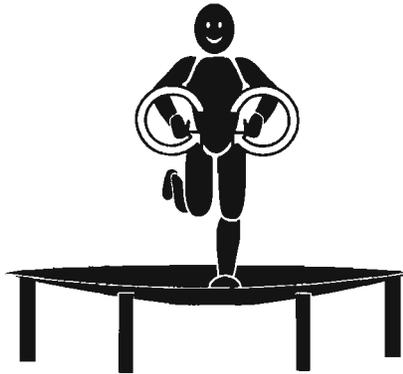
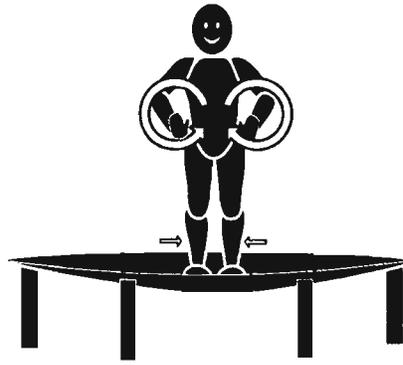
Foot patterns

Practice these with standard arm circles (if this is too difficult, start with no circles at all) and then with parallel arm circles (clockwise and counter-clockwise).

A.



B.



In - out, and forwards - back feet movement with parallel arm movements.

A. In - out: Feet apart on the first bounce and together on the next bounce. Repeat in and out over and over switching feet position between bounces

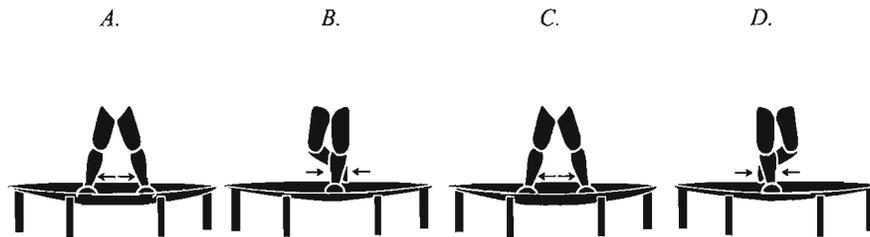
B. Forwards - backwards: Left foot in front and right behind on the first bounce and right in front and left behind on the next bounce. Repeat alternating feet position between bounces.

Feet together/apart, bouncing on both feet—Move your feet together and apart with each jump (like doing jumping jacks). Start with your feet shoulder-width apart, jump, and land with your feet together next to each other, jump and move them apart again, and then jump

them together, then apart, etc. Keep your weight and movement equal on each side. Combine with hand circles and later with attention and memory exercises.

Feet front to back, bouncing on both feet—Switch feet position as you jump, landing with your right foot in front and your left behind. Next switch the left foot in front and the right behind on the next jump. Then jump and switch again and again, like running in place. Keep equal weight and movement on each side (don't lean forward or back). Combine with standard and then parallel hand circles. Practice these movements later with attention exercises.

Feet cross-over and apart—This pattern has four parts: 1) crossing your right foot in front of your left, 2) separating your feet to shoulder-width apart as above, 3) moving the feet together again but with the left foot crossing in front of the right, 4) separating them to shoulder-width distance. Repeat this again and again with each move on the bounce. Combine with hand circles and later with attention and memory exercises.



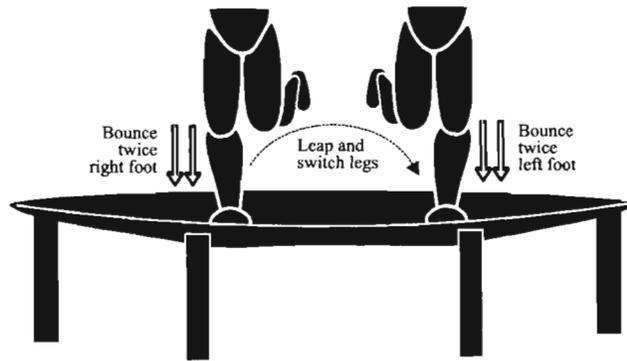
Cross-over feet movement. Do first with standard circles, then with parallel circles to the left and to the right. Repeat this sequence.

- A. Feet apart*
- B. Feet cross with left foot in front*
- C. Feet apart*
- D. Feet cross with right foot in front*
- E. Repeat a-d.*

Alternate feet: bouncing on one foot and then the other.

- 1) Left, right, left, right....
- 2) Left, left; right, right....
- 3) Left, left, right; or right, right, left.

Combine with hand circles and later with attention and memory exercises.



Jump twice on right foot then leap to left and jump twice of left foot. Repeat over and over. The body faces straight ahead but moves from side to side. Try with no circle movements then standard circles then parallel in both directions.

Alternate feet: two bounces then jumping sideways. Jump twice on the left foot and then twice on the right foot as in 2) on page 46. But this time make a definite sideways jump, with the right foot landing about 30 inches to the right for two bounces, and then, springing 30 inches to the left, alternating right and left for two bounces each. You should have two spotters stop the jumper from flying off the trampoline. Mark the right and left positions with chalk lines drawn directly on the trampoline bed.

When this is achieved with some control, combine with standard and then parallel hand circles.

Clap rhythm exercises

Clapping is timed to the bottom of the jump. First, practice with no special foot movements. Later, try them combined with the foot movement exercises above. Before you move into the more complex exercises in the next sections, add clap and foot exercises to the easy ones. This increases the number of actions you can perform at one time (multi-tasking).

- 1) Clap your hands on every bounce.
- 2) Clap your hands on every other bounce.
- 3) Clap your hands on every third bounce.
- 4) Clap your hands on every fourth bounce.
- 5) Change among different rhythms (1) through (4).

As you bounce, set a specific time to make the change (e.g., after five bounces change from clapping on every bounce to every other bounce).

- 6) Combine clap exercises with foot movements above.

A word about knee-drops and seat-drops

Larger trampolines allow for knee drops and seat drops. These drops require good balance, strong leg and abdominal muscles, and are not for the physically vulnerable or faint-hearted. There is a degree of risk involved so use your judgment. But drops are wonderful for building coordination and balance and, when included in the attention and memory exercises, are extremely useful for training quick recovery and anticipation because it is necessary to see and get prepared earlier to do a knee or seat drop than to do a clap or silent bounce. For example, in performing exercises using vowels as target letters, one must recognize, decide, and prepare much earlier for seat drops on vowels than for silence or clapping on them.

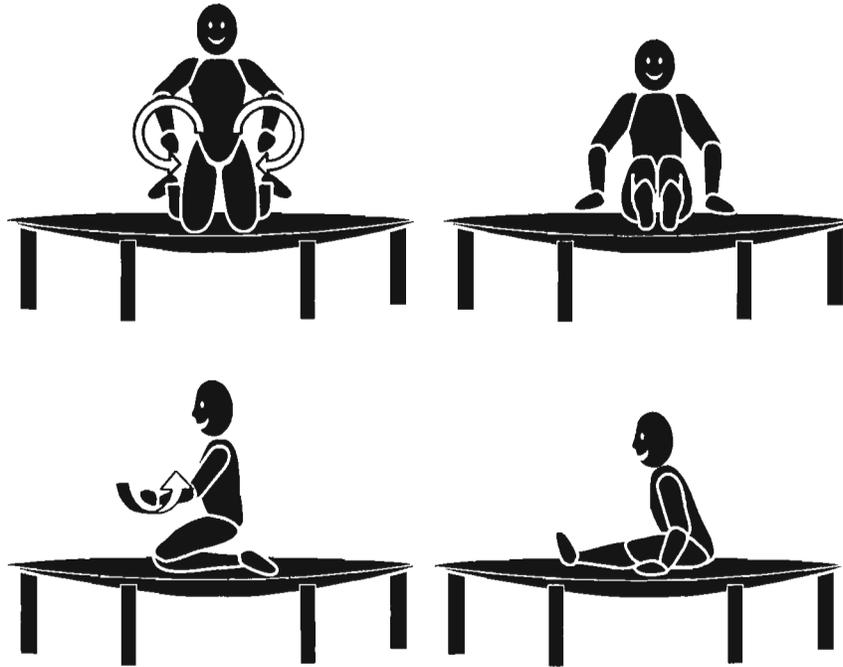
I strongly recommend having spotters ready to prevent injury from falling off the trampoline, especially behind the jumper. You may need spotters on each side to grasp the jumper's belt loops to provide extra lift and stability. With experience this will not be necessary.

To train knee drops, start with the jumper bouncing on his knees. Have the hands make standard circles. Ask him to bounce higher and higher until he can bounce so high that he can jump to his feet. Starting on the knees trains the body to hold itself rigid enough to avoid back and neck sprains. After practicing on the knees into standing up, have the person jump down to his knees from standing, bounce deeply, and then rebound back up to standing. When secure at knee drops from standing, try it while jumping. Bouncing must be controlled and the attention must be ready before attempting the drop. The next step is to knee drop at a specific time, such as on the third bounce. The jumper must learn to recover after the knee drop, so have her count out loud to 10 and on 4 do a knee drop but continue counting all the way to 10 saying 5 on the bounce immediately after the knee drop. Have her spell her name and do a knee drop on a specific letter or on the vowels. Make sure there is no extra bounce after the knee drop. Later you can add it to any of the exercises described in the following chapters.

Seat drops are usually more difficult but some people find knee drops harder. Start by seating the learner on the trampoline with legs stretched straight out in front. Hands are at the sides near the hips with palms down and fingers pointing forward. Use the hands to add strength, balance, and safety when doing seat drops. Bounce while in this seated position. For some this is easy and natural but others must be bounced by a helper pushing near them with their hands on the trampoline or actually standing on the trampoline behind them. This gives the feeling of bouncing while sitting and once bouncing, the bouncer should try to take over by herself and bounce without assistance. Some people can easily bounce themselves

A.

B.



A. Knee drop with standard arm circles.

B. Seat drop with hands supporting bounce.

high enough to be able to stand up from this sitting bouncing. Most struggle and finally learn, but some never learn to bounce to a standing position when starting from a seated position. It's OK if they never succeed because they are practicing the right moves and are learning the feeling.

The next step is sitting down by falling butt first from standing. Practice standing and kicking a balled-up piece of paper with one foot, like kicking a soccer ball. Then learn to kick it with the other foot. This gives the feeling of kicking the legs with a kind of snap. The next step is to kick with both feet at the same time and to drop down to the seated position with hands at

the sides. Do not jump forward. Many people make this mistake. Make sure the seat lands where the feet were before the drop. Aim the seat straight down so the downward momentum goes down into the trampoline to provide sufficient spring to rebound high enough to stand back up. Jumping forward dissipates the downward thrust and prevents success. Draw a big chalk X where the feet stand and then aim the seat at this target. Don't be discouraged, because this practice prepares for success later. Some people take several sessions, suddenly they've done it to their surprise and great relief. Remember, safety first. Seat and knee drops take a lot of energy. It's important to stop early, before fatigue or frustration sets in and to wait until later for the next attempts.

VI. VISUAL ATTENTION AND MEMORY EXERCISE

This chapter describes training using the visual charts found at the end of this book. First master easier tasks on the various charts. Then learn the more difficult exercises using the same charts. You can also use your own charts. Make new ones on the computer, write them on a chalkboard or paper, or use a newspaper or magazine headline. Learn to spell or to memorize vocabulary words from school or lists of names or other items from work. These exercises are described in the last chapter.

Follow the hints in Chapter 2 on finding the right challenge. If a trampoline is not available, go over the descriptions in Chapter 4 on using alternative rhythm devices for these exercises. Call out the words, letters, numbers, or symbols exactly on the beat. Remember to get the voice as full, confident, and precisely timed as possible.

The charts are similar in that each has an array of pictures, numbers, letters or words printed in a sequence. Items can be read forwards (left to right as in reading a book), backwards, or vertically. Position the charts right side-up, sideways, upside-down or angled.

Practice reading a sequence until you can succeed at least three times in a row gracefully, making zero errors and without stopping. You will tend to memorize a sequence as you work on it. This familiarity helps you succeed more easily on that particular sequence. But can you succeed on the same exercise with a different sequence? Work until you really master the exercise by making sure that you can perform any new sequence perfectly with ease the first time you try. Add clap rhythms and foot patterns for even greater mastery on a task at one level before attempting more difficult tasks. Again, make sure to practice calling out in a strong voice.

The picture charts do not require knowing how to read numbers, letters or words. They are very useful when working with pre-readers, but try them yourself. They are fun and a great way to start. The other charts do require knowing numbers and letters, and words of varying difficulty. The different types of charts employ different brain areas. You may find that some are easier than others. A later discussion describes how to teach letters and numbers using this approach.

Meow, Bark picture charts

There are three charts composed of two, three or four kinds of animals. Read the charts by saying “Bark” for dogs, “Meow” for cats, “Quack” for ducks, “Neigh” for horses, and “Woof” for dog #2. You can also say the name of the animal (“Duck” for duck, etc), or say the sound of one animal and the name of next.

Number charts

There are two, one with all black numbers and one with black and white numbers. Say the numbers. Long numbers such as 27 have to be said quickly to get in the entire number on a single beat.

The Hart chart

This chart has an array of letters which are to be said on the bounce or beat.

Words and sentences

Spell the words and sentences while looking at the chart. When there is more than one word, the spaces between them count too. Take a silent bounce whenever you come to a space. Spelling the words backwards is much more difficult. The letter sequences make no sense and we must rely almost entirely on visual attention. Skipped letters, wrong letters, and out-of-sequence letters are much more likely to occur when spelling backwards.

Paragraphs

Paragraph exercises may be the most important work for improving your reading and attention. It's at the level of the paragraph that many average readers lose their train of thought. Paragraphs are visually challenging. Eye movement, ocular focusing, binocular eye teaming, and visual memory and recognition skills must be efficient, accurate and effortless. If you find yourself getting lost in the details, straining to find the chunks of meaning, and missing the big picture of what you read, you may need an evaluation by an optometrist who practices behavioral vision care and specialized vision training.

Spelling your way through these paragraphs takes a long time and really stretches the span of attention. Spell the words letters by letter. Take a silent bounce on the spaces between words. Paragraphs can be spelled backwards as well as forwards with the complex variations described for words and sentences.

Punctuation marks can be named—period, comma, question mark, colon, etc.—followed by an extra bounce for the space between words or sen-

tences. Or, you can skip over the punctuation marks and bounce for the space between sentences. Apostrophes, likewise, can be named or ignored.

Paragraphs can also be read word by word. Be sure to call out the complete word on a single bounce or beat, even the long words. Take a silent bounce between sentences. Punctuation marks can be named on the appropriate bounce, assigned as a silent bounce, or totally ignored.

Make your own charts

Don't limit yourself to the charts presented here. Make your own. Print them in large letters for trampoline exercises. It is important that you also practice with a metronome using paragraphs from newspapers, magazines, and books as you sit at your desk. Be sure to start with a very slow beat or skip a beat so that you experience success at the beginning. No matter how difficult chart exercises may seem to be at first, don't be daunted or discouraged. If you stick with it and follow the principles of *Attention and Memory Training* described here, you will succeed.

Simple exercises

A. Reading forwards

Read starting at the upper left from left to right and top to bottom like normal English reading. If the whole chart is too much at once, work to master just single lines or partial charts until fluency is attained. Work single lines until you can get any new line on the first try. Try two lines at a time, then more until you can read the whole chart without making an error. Note: do not put in an extra bounce when changing to the next line.

B. Reading backwards

Go through the sequence backwards, starting at the lower right and moving left, working your way up the chart until you end at the upper left, moving right to left on each line.

C. Reading columns

Read up and down the columns in various directions. To make eye movements more accurate, make a copy of the chart, cut the columns apart, and display two columns two feet apart. 1) Read down one column top to bottom, cross over, and read up the other; 2) alternate reading between one column and the other down the list; 3) alternate reading between the columns going down one line and up the other. For example, say the top item in column one, the bottom item in column two, the second to top item in column one, the second from bottom item in column two, the third from top item in column one, etc.

D. Turning the chart

Turn the chart on its side or upside down and do the above or any of the exercises.

E. Skipping every other item

Say every other item. Or say every third item.

F. Hand clapping while reading

Read the items, one to a bounce, and clap your hands on every beat. Read the items, one per bounce, but clap on every other beat, or every third beat, or skip one beat, then two, then one, then two, etc.

G. Loud and soft words.

- 1) Loud only on the first item on each line (or only the second, third, etc.).
- 2) Loud on every other or every third or fifth object.
- 3) Loud on one particular class of objects (vowels, odd numbers, single digit numbers, etc.).

H. Add movement

Add the physical coordination patterns described above while reading the charts.

VII. MORE ADVANCED ACTIVITIES

General instructions

These variations are more challenging. They demand fine, sustained control of attention. A helper might be necessary to aid in catching errors or misinterpretation of the instructions.

Here is a brief description of the advanced exercises with simple examples. Since the charts have unique features, examples for each type of chart will follow in the next chapter.

Substituting for designated items

Rather than saying particular items, you are asked to do or say something special. For example, on the MEOW, BARK, QUACK charts you might have to say “HORSE” when you come to a horse, but: “MEOW, BARK, OR QUACK,” on the other animals.

Word exercises may require you to substitute a silent bounce for the letter “P” in the word “jumping.” This would be: “J, U, M, *silent bounce*, I, N, G.” You can say the “P” silently to yourself if necessary but you must take only one silent beat on “P”. P is a specific letter but vowels are a class of letters. Silence on the vowels using “JUMPING” all the consonants are called out but “U” and “I” would be silent—“J, *silent bounce*, M, P, *silent bounce*, N, G.”

Instead of silence on a particular item, try being silent and clapping on the designated item. On JUMPING, for example, take a clap on “P” instead of saying it: “J, U, M, *clap*, I, N, G.”

Substitute a word for designated items. A boy’s name for the “P” in jumping: “J, U, M, *Dan*, I, N, G.” Try different categories such as, boy and girl names, members of your family, body parts, cities, states, countries, animals, presidents, colors, foods, brands of cars, etc.

When ready, add substitutions for several items in a sequence. For example, by substituting a number for “J,” a color for “U,” a clap for “M,” silence on “P,” a fruit for “I,” “N” for N, and a letter other than “G” for “G,” “JUMPING” becomes “5, red, *clap*, *silence*, grape, N, X.”

Change letters to the next letter in the alphabet. JUMPING, for example, would be “K, V, N, Q, J, O, H.” (J=K, U=V, M=N, P=Q, I=J, N=O, G=H) Or substitute the previous letter in the alphabet: “I, T, L, O, H, M, F.”

Insert one sequence within another. For example, counting the vowels in jumping: "J, I, M, P, 2, N, G." Or say the alphabet on certain items such as the vowels in JUMPING: "J, A, M, P, B, N, G."

Try spelling words on certain items. Spell "WE" on vowels in jumping: "J, W, M, P, E, N, G."

On the number charts substitute for a specific number (all 9's) or for a class of numbers, odd numbers, single digit numbers, numbers containing a 5, two of the same digit like 22, etc. Also all numbers can be added to, subtracted from, or multiplied by 1, 2, 3 or add one to odd and subtract one from even numbers. The black and white number chart offers other options, black and even vs. black and odd.

Try these exercises going backwards.

Try reading words in paragraphs, keeping silent, on three letter words; words starting with a certain letter or containing certain letters; verbs, or nouns, etc.

Alternating between two sequences

Even more demanding of visual attention, eye movement accuracy, and visual memory are the exercises that alternate between two sequences. You can use two visible charts by looking back and forth, saying the items on one chart and then the other. You can also use one visible sequence and another unseen sequence. For example, read from the letter chart and alternately count forward from 1, or say the alphabet, spell your name or recite a memorized sentence. You can also alternate between two unseen sequences such as a sentence from memory and counting backwards by two's from 21, or between two memorized sentences.

Examples:

1) Counting and JUST ICE-

"J, 1, U, 2, S, 3, T, 4, *silence*, 5, I, 6, C, 7, E, 8."

2) Alphabet and JUST ICE:-

"J, A, U, B, S, C, T, D, *silence*, E, I, F, C, G, E, H"

3) Spelling two equal length words such as TUESDAYS and JUST ICE:

"J, T, U, U, S, E, T, S, *silence*, D, I, A, C, Y, E, S."

Sentences offer additional opportunities for complexity: "MARY HAD A LITTLE LAMB." Alternating with the number chart:

"5, M, 25, A, 13, R, 32, Y, 27, *silence*, 39, H, 12..."

First/last alternation

Read the items forwards and backwards alternately from both ends of the sequence. Go forwards, starting with the first item at the beginning of the sequence (left-to-right, top-to-bottom) and alternately backwards starting from the last item (right-to-left, bottom-to-top). The direction of reading changes on each beat.

The word JUMPING, for example, would be “J, G, U, N, M, I, P.” Each letter is called out on successive beats, on the first beat say, “J,” the first letter reading forwards; on the second beat say, “G,” the first letter reading backwards; on the third beat say, “U,” the second reading forwards; on the fourth beat say, “N,” second from the end; then “M,” third letter reading forwards; followed by “I,” the third backwards; and finally, say, “P.”

Confused? How about a series of words like “D A N C I N G O N T H E P A T H?” Don’t forget that the spaces between the words have a silent beat. “D, H, A, T, N, A, C, P, I, *silence*, N, E, G, H, *silence*, T, O, *silence*, N,” on successive beats.

Try the first/last sequence with the various charts and with words, sentences and paragraphs. Start easy, using one or two words before trying more words. Start with single lines before trying two or more lines. To make the task easier, slow the tempo or skip a beat between letters. Spaces between words can be hard to track. Sequences that include more than one line are much harder because the eyes change direction at the end of the line and when the sequences cross over each other.

Clap/reverse exercise

This exercise requires a helper to clap as a sequence of items is being read. Here’s how it works. The helper claps on an item in the sequence. The clap occurs precisely on the bounce and as an item is said. On the bounce following the clap, repeat the item said at the time of the clap. On subsequent bounces the direction of reading is reversed. If the sequence was going forwards before the clap, it changes to reading in reverse order. More than one clap can occur during the sequence. Each clap signals a repeat of the item and a reversal of the order of reading.

Suppose you are spelling the word JUMPING and the clap comes on “P”—“J, U, M, *P-clap*, P, M, U, J.” The clap is on P, “P” is repeated on the next beat (no extra beat), and the direction of reading is reversed, “P, M, U, J,” on subsequent beats.

The following are likely to occur: extra beats, the clapped-on letter is not repeated, the wrong letter is said, the one before or after is repeated, or the

direction of reading is not reversed. The clap must come exactly on the beat to avoid confusion.

Several clap/reverse claps can occur within the same sequence. For example: “J, U, M, *P-clap*, P, M, *U-clap*, U, M, P, *I-clap*, I, P, M, U, *J-clap*, J, U, M...” Single words, whole sentences, or the number, letter, arrow and picture charts are all fair game. The goal is for ten clap/reverses without stopping.

When doing phrases or sentences, the spaces between words are silent. Clapping on a space calls for a second silent beat and then reversing direction. So clapping on the space while spelling “THIS MAN WILL WORK HARD,” for example, would be: “T, H I, S, *space-clap*, *space*, S, I, H, T.”

Clapping at regular and predictable intervals is easier than clapping again after just one or two jumps or at unpredictable intervals. Start easy with several beats between claps. When this is mastered, decrease the time between claps and vary the interval between claps.

For helpers, close scrutiny of the performers, paying attention to their voice, coordination, balance, facial expression, eye movement, etc., gives clues about the strength of their attention. Suddenly they may appear less attentive. Helpers can time the claps to moments of wandering attention. This shocks jumpers out of their lapse and snaps them back to full attention.

What happens if there are two claps in a row? Each clap means the letter is repeated and the reading direction is reversed. So in response to a second clap that comes as the first letter is repeated the letter is repeated for a third time. The direction would reverse again on the second clap, so reading would continue in the original direction. (“J, U, M, *P-clap*, *P-clap*, P, I, N, G.”)

It’s much harder when the jumper does his or her own clapping. Now the jumper must do everything—decide when to clap, say the item while clapping right on the bounce, say the same item again, reverse direction, and continue reading, clapping, repeating, reversing several more times as they continue through the sequence. Self-directed clap/reverse is extremely difficult for some people. A helper may still be necessary to spot errors. Take it easy on yourself at first by choosing the clap letter in advance, first just one letter and then more. Then work without advance choosing, moving to more difficult challenges as you master easier ones. Combine clap/reverse with other advanced challenges described here. Work to get 10 or more reverses without error.

Jump-turn on vowels or designated items

This is one of the most difficult variations. The instruction is: Make a silent bounce for the vowel, followed by a 90° left or right turn, and then continue with what comes next without taking an extra bounce after the turn.

Note that the turn comes *AFTER* the silent bounce, not before it. The difficulty lies in the tendency to see the vowel too late, panic when you come to it, lose control, and impulsively turn before the silent bounce for the vowel rather than after it. This exercise develops anticipation—seeing what’s coming early enough to be prepared; self-direction—delaying the impulse to turn until after the vowel, and recovery—regaining clear-minded attention immediately after turning.

If there is a space after the vowel, take an extra bounce. If a consonant follows the vowel, turn and immediately say it. Especially difficult is the case where there are two vowels in a row, because after turning for the first vowel, you must make a silent bounce for the second vowel and turn again. It all happens so quickly that unless you stay fully present, anticipation, self-direction and recovery skills evaporate.

See if you can follow this example of jump-turn on the vowels for the word JUSTICE. Say, “J—*silent bounce for U then 90° turn*—“S”—“T”—*silent bounce for I then 90° turn*—“C”—*silent bounce for E then 90° turn*. Practice this in slow motion by standing on the floor and bending your knees to indicate a bounce. Take your time and say, “J” as you bend your knees, bend again as you say, “*Silent bounce for U then turn right*” (actually turn), bend again and say “S,” bend and say, “T,” bend and say, “*Silent bounce for I,*” turn left and bend and say, “C,” bend and say, “*Silent bounce for E,*” and turn again.

For JUST ICE it would be: “J, *silent bounce for U then 90° turn*, S, T, *silent bounce for the space, silent bounce for I then 90° turn*, C, *silent bounce (for E) then 90° turn.*”

The jump-turn sequence can also be assigned to other items such as odd or even numbers, cats, etc.

VIII. ADVANCED EXERCISES FOR SPECIFIC CHARTS

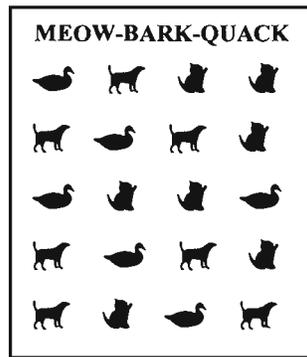
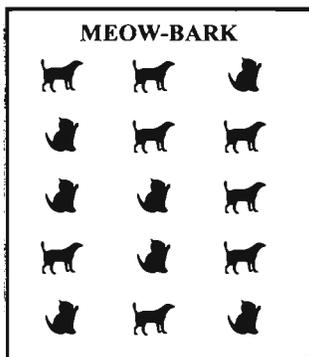
These exercises demonstrate using the sequence charts included at the end of this book. Make up your own sequences as well. The number of possible exercises and charts are unlimited. Creating your own tasks brings an additional benefit, experience in self-directed learning—a chance to explore how you estimate your stresspoint when you tackle new challenges. Many people over-reach, usually without thinking about it, and choose tasks too difficult for their ability to do them. Some people's biggest learning disability is choosing tasks far above their stress-point level. If new challenges lead to anxiety, frustration, failure or avoidance, you probably fall into this category.

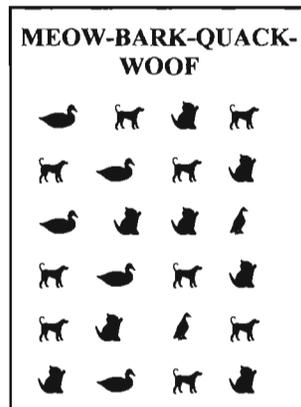
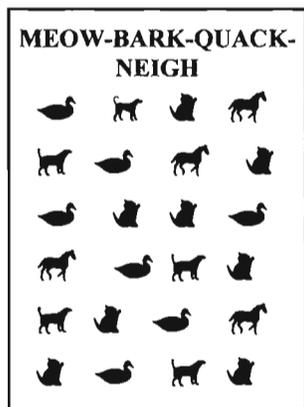
Remember to change the sequence by reading the charts from different directions; add the clapping tasks or physical coordination movements described in Chapter 3. Don't make the mistake of rushing through the exercises. Work for mastery before moving on.

Items are said at the lowest point of the bounce. The voice is loud and clear. Don't forget hand posture and circles. Find appropriate difficulty by starting on just a single line of print. If this is easy, try two, three, and then more. If one line is too difficult try just three or four letters and work up to a whole line.

Any task can be made easier by adding a silent bounce between each letter to slow down the action. For more difficulty, add clap rhythms and foot patterns while reading the letters. Before moving to the next task, work for flow, grace in action, and alertness with relaxation.

Meow, Bark picture charts





You may need to start with a single line or part of a line to make it easier before trying a whole chart. Variations might include:

- A. Silence on one animal, say the animal's sound on others. Say, "Meow," on cats and be silent on dogs. Switch to silence on the other animal, say, "Bark," on dogs and be silent on cats.
- B. Sound vs. name. Say "Cat" on cats, and "Bark" on dogs, etc. Then change to the opposite, "Meow" on cats and say, "Dog" on dogs.
- C. Clapping on one of the animals. Clap and keep silent on the cats, but say, "Bark," on dogs with no clap. Then switch animals.
- D. Alternating patterns. Clap on all the cats but alternate saying "Bark" on the first dog, "Dog," on the second dog, "Bark," on the third, "Dog" on the fourth and so on. There are many combinations such as giving one response ("Bark") on the first two (dogs), a different response ("Woof") on the third, and then the first response on the next two, and the alternate on the next, etc. ("Bark," "Bark," "Woof," "Bark," "Bark," "Woof," etc.).
- E. Clapping, saying, keeping silent, saying name, making sound. Notice that two types of dogs and two types of ducks appear on some charts. Clap and say, "Bark," on curly-tailed dogs and "Woof," on blunt-tailed dogs. Keep silent on the squatting ducks, but say, "Quack," on the standing ducks.
- F. Substitute a sequence—Count, say the alphabet, or spell your name on one kind of animal, say the animal's sound on the others. Combine with claps, animals' names vs. animals' sounds, or silence, in a variety of ways. Count forwards or backwards by ones, twos, threes, fives on

one animal, clap on another, keep silent on another and say the sound on others. Try it for one of the two types of dogs or ducks.

- G. Say a city, state, vegetable, color, sport, boy's or girl's name, etc. on one animal and do various actions on the others.
- H. Try the clap/reverse and the first and last alternation described in the preceding section. Combine with all of the above.

Number charts

Black Number Chart

5	25	13	32	27	39
12	29	8	19	45	2
48	34	11	42	15	37
9	18	33	1	22	4
16	23	41	30	40	43
3	28	14	44	6	47
26	31	38	46	10	20

Find the stresspoint by starting with a single line, part of a single line, more than one line, or the whole chart. If you need to make it easier, add an extra bounce between numbers. For more difficulty add clapping, hand circles, and/or foot movement exercises. Also try it vertically by columns.

- A. Read the numbers forward (left to right sequence).
- B. Read through numbers backwards (right to left).
- C. Read first and last number of each line starting with the top left: "5, 39, 12, 2, 48, 37, 9, 4, 16, ... 20," or second column from the left and second column from the right: "25, 27, 29, 45, 34 ... 10."
- D. Say every other number: "5, 13, 27, 12 ...," or say every third number: "5, 32, 12, 19 ..."
- E. Add one to each number: "6, 26, 14, 33, 28, 40 ...," or subtract one: "4, 24, 12, 31, 26 ..."
- F. Reverse direction after each clap: For example, reading forward through the top line, first clap at "32" and second at "25," the sequence would be: "5, 25, 13, 32 (*clap*), 32, 13, 25 (*clap*), 25, 13, 32 ..." Use the whole chart. Try for 10 correct reversals without error. Try it self-directed (the jumper claps instead of the trainer).
- G. Read the numbers alternately from both directions. Start with the first number of a line, then read the last number, then the second from the beginning, the second from the end, the third from the start, the third from the end, the fourth from the start, the fourth from end, etc.
Examples:

- 1) Only top line: "5, 39, 25, 27, 13, 32"
 - 2) Top and 2nd: "5, 2, 25, 45, 13, 19, 32, 8, 27, 29, 39, 12"
 - 3) Whole chart: "5, 20, 25, 10, 13, 46, 32, 38, 27, 31, 39, 26, 12 47 ...
37, 16, 9, 4, 18, 22, 33, 1"
- H. Bounce on certain numbers without saying them; for example: silence on the even numbers, or on single digit numbers (1, 2, ... 9), on numbers with repeated digits (11, 22, 33 ...), on any number with a 2 in it (25, 32, etc.), on any multiple of 3, etc.
- I. Clap on certain numbers instead of just keeping silent on a class of numbers, as in G above.
- J. Count on certain numbers, as in G, but counting instead of clapping; for example, say, "1" on the first even number (instead of "32," you would say "1", "2" on 12, "3" on 8, and so on...
- K. Say the alphabet on certain numbers as above, but say, "A, B, C..." instead of "1, 2, 3..."
- L. Spell words on certain numbers. Examples:
- 1) Easy word: Spell "HAND" substituting for even numbers: "5, 25, 13, H, 27, 39, A, 29, N, 19, 45, D..."
 - 2) Hard word: Spell "Washington" substituting for any number with a 4 in it.
 - 3) Two words with space between: Spell "GREAT WORK" (g r e a t [space] w o r k) on all single-digit and repeated numbers (11, 22, 33).
 - 4) Try above (1-3) spelling backwards, skipping vowels, clapping on spaces, etc.
- L. Substitute a class of words on certain numbers. Example: On each single-digit number say a different girl's name. Try this with other categories such as, cities, states, countries, animals, body parts, fruits, colors, etc.
- M. Use loud and soft. Say odd numbers, for example, in a loud voice and even numbers in a whisper. This is harder than it seems, especially if clapping and the various physical coordination exercises are done at the same time.
- N. Jump-turn on designated numbers.
- O. Do clap-reverse exercises.

Black and White Number Chart

BLACK AND WHITE NUMBER CHART				
④	⑦	②	⑥	③
⑧	②	⑨	①	③
④	⑤	⑤	⑧	①
③	⑥	⑩	⑥	③
⑧	②	⑦	⑥	④
⑩	③	④	①	⑨

This chart is much easier because all the numbers are single digits and there are fewer numbers on the chart. Therefore you may want to start with this chart when working with younger children. However, the black and white numbers offer options that the all-black number chart doesn't such as:

Black-even vs. black-odd vs. black and white even, black-even vs. white-even, white-odd vs. black-odd, black vs. white specific numbers (e.g., clap on black eights or multiples of three, etc.). Because it has fewer items than some of the other charts, you can do many of the variations just mentioned—clap-

ping, silence, counting, saying the alphabet, spelling a word or words, use loud vs. soft, jump turn, clap reverse, etc.

Letter chart

If a child has problems with certain letters, make a target using letters he or she already knows. Work your way through the letters, adding one new letter and subtracting one old one, gradually substituting all the known letters for new ones.

Start with a single line, part of a single line, more than one line, or the whole chart.

- Read the letters forwards (left to right).
- Read the letters backwards (right to left).
- Say every other letter: "O, N, V, T ..." Or say every third letter: "O, P, T, E ..."

O	F	N	P	V	D	T	C	H	E
Y	B	A	K	O	E	Z	L	R	X
E	T	H	W	F	M	B	K	A	P
B	X	F	R	T	O	S	M	V	C
R	A	D	V	S	X	P	E	T	O
M	P	O	E	A	V	C	B	K	F
C	R	G	D	B	K	E	P	L	A
F	X	P	S	M	A	R	D	M	G
T	M	U	A	X	S	O	G	P	B
H	O	S	N	C	T	K	U	Z	L

- D. Say the next alphabet letter following the printed one: “P, G, O, Q, W, E ...” Or say the one before: “N, E, M, O, U ...” (A follows Z.)
- E. Reverse direction after a clap: Reading forward through line 1, first clap at “V” and a second at “F,” the sequence would be: “O, F, N, P, V (*clap*), V, P, N, F (*clap*), F, N, P ...” Try for 10 correct reversals without error. Try it self-directed: the jumper claps instead of the trainer.
- F. Read letters alternately from both directions. Start with the first letter of a line, then read the last letter, then the second from the beginning, the second from the end, the third from the start, the third from the end, the fourth from the start, the fourth from the end, etc.

Examples:

- 1) Only top line: “O, E, F, H, N, C, P, T, V, D.”
- 2) Top and 2nd: “O, X, F, R, N, L... H, B, E, Y.”
- 3) Top, 2nd, 3rd: “O, P, F, A, N... K, Z, O, E.”
- 4) Whole chart: “O, L, F, Z, N, U... A, K, R, F.”

Start with just single lines, then try two or more lines, finally the whole chart. To make it easier, add an extra bounce. For more difficulty, add claps and foot exercises. Also, try it vertically by columns.

- G. Bounce on certain letters without saying them Examples: silence on the vowels (including “Y”); on all letters from “A” to “D” or “K” to “P”; or any letter from your name or another word of your choice.
- H. Clap on certain letters Instead of just keeping silent on a class of letters, as in G, substitute a clap (stay silent and clap on designated letters).
- I. Count on certain letters. As in H, but count instead of clap; for example, say “1” on the first vowel of the set, “2” on the second, “3” on the next, and so on.
- J. Say the alphabet on certain letters as above, but “A, B, C...” Instead of “1, 2, 3 ...”
- K. Spell words on certain letters. Examples:
 - 1) Easy word: Spell “HAND” substituting for vowels plus Y in the second line: “H, B, A, K, N, D, Z, L, R, X.”
 - 2) Hard word: Spell “Washington” substituting for O’s or E’s.
 - 3) Two words: Spell “GREAT WORK” (g r e a t [space] w o r k) on all P’s and K’s.

- 4) Sentence: Substitute "Mary had a little lamb" for all vowels (not including Y, in this case, to make it come out even). Spell all the letters and take a silent jump on the spaces between words.
 - 5) Try the above (A-D) spelling backwards, skipping vowels, clapping on spaces, etc.
- L. Say nouns on certain words. Example: On each designated letter say a different girls name (on all P's: "O, F, N, Sue, V...") Try this with other categories such as, cities, states, countries, animals, body parts, fruits, colors, etc.
- M. Mix two of the exercises above.
- 1) Clap; Clap on one set of letters while being silent on another: clap on letters C and K, be silent on vowels (including Y); try other clapping: clapping and counting, clapping and alphabet, clapping and spelling, clapping and a noun class.
 - 2) Say the alphabet on one letter, silence on another; or counting, spelling, noun class ..., on another.
 - 3) Try other mixes: spell two words on two different letters; two different noun lists.

Words and Sentences

Use the chart:

BIG

ATE

GREAT

JUSTICE

JUST ICE

THIS MAN WILL WORK HARD

I CAN MAKE IT WORK

WE LOVE TO SAIL ON A SEA OF BLUE

**THE PLAYERS ATE A TASTY LUNCH IN
WASHINGTON WITH A FRIEND**

Make other words or sentences in large letters on a chalkboard or poster paper and a thick, felt-tip pen.

Simple tasks

Look at the written word(s). Start using a single word. If this is easy, try longer and multiple words and skip ahead to more complex tasks. If this is difficult, slow down by inserting a silent bounce between each letter. Stay with simple words until you can succeed with new words on the first try. Then make longer words. Before moving to the next phase, work for flow, grace in action, and alertness with ease.

Call out letters at the lowest point of the bounce. Use a loud and clear voice. Don't forget hand posture and circles. The spaces between words are not to be skipped over; they are marked by a silent bounce. More advanced tasks require claps or other words on spaces.

For one or two words go through the following sequence of tasks:

- A. Spell the word(s) in forward sequence (left to right).
- B. Spell it backwards (right to left).
- C. Clap on every bounce and read the word(s) forwards or backwards.
- D. Perform physical coordination exercises (Chapter 5) while reading letters.

Complex tasks

Use the sentences provided or write out other groups of words. Practice the sequence of exercises below. Remember the voice, posture and hand circles.

- A. Spell the words in forward sequence (left to right).
- B. Spell it backwards (right to left).
- C. Clap on every bounce and read words forwards or backwards.
- D. Perform physical-coordination exercises while reading letters.
- E. Reverse the direction after a clap:
Start reading letters from left to right, one on every bounce. The helper claps as a letter is said. On the next bounce that letter is repeated. Then continue reading letters in reverse order (right to left) without skipping a bounce. The trainer claps on a different letter, and this letter is repeated and the reading direction reversed again, left to right, etc.

For example, reading forward through "WE LOVE TO SAIL ON A SEA OF BLUE" becomes "W, E, (*bounce*), L, O, V (*clap*), V, O, L, (*bounce*), E (*clap*), E, (*bounce*), L, O, V, E, (*bounce, clap, bounce*), E,

V, O ..." Notice that the bounce is repeated if clapped on.
Try for 10 correct reversals without error.

- F. Try self-directed reversals.
The jumper claps instead of the trainer and performs the above exercise.
- G. Read letters alternately from both directions.
Examples:
- 1) On GREAT: "G, T, R, A, E."
 - 2) I CAN MAKE IT WORK: "I, K, (*bounce*), R, C, O, A, W, N, (*bounce, bounce*), T, M, I, A, (*bounce*), K, E"
 - 3) On, WE LOVE TO SAIL ON A SEA OF BLUE: "W, E, E, U, (*bounce*), L, L, B, O, (*bounce*), V, F, E, O, (*bounce, bounce*), T, A, O, E, (*bounce*), S, S, (*bounce*), A, A, I, (*bounce*), L, N, L, O, (*bounce*)."
- To make it easier, add an extra bounce. For more difficulty add claps and foot exercises.
- H. Bounce on vowels including Y without saying them
Examples:
- 1) GREAT: "G, R, (*bounce, bounce*), T."
 - 2) JUST ICE: "J, (*bounce*), S, T, (*bounce, bounce*), C, (*bounce*)."
- I. Bounce on vowels including Y without saying them, clap on spaces
Examples:
- 1) JUST ICE: "J, (*bounce*), S, T, (*clap, bounce*), C, (*bounce*)."
 - 2) I CAN MAKE IT WORK: "(*bounce, clap*), C, (*bounce*), N, (*clap*), M, (*bounce*), K, (*bounce, clap, bounce*), T, (*clap*), W, (*bounce*), R, K."
- J. Clap on vowels including Y without saying them, bounce on spaces
Examples:
- 1) JUST ICE: "J, (*clap*), S, T, (*bounce, clap*), C, (*clap*)."
 - 2) I CAN MAKE IT WORK: "(*clap, bounce*), C, (*clap*), N, (*bounce*), M, (*clap*), K, (*clap, bounce, clap*), T, (*bounce*), W, (*clap*), R, K."
- K. Count on vowels including Y, clap on spaces
Examples:
- 1) JUST ICE: "J, 1, S, T, (*bounce*), 2, C, 3."

- 2) I CAN MAKE IT WORK: 10, (*clap*), C, 9, N, (*clap*), M, 8, K, 7, (*clap*), 6, T, (*clap*), W, 5, R, K.”
 - 3) You can also count backwards from 10 or 20, count forwards, or backwards by 2’s, 3’s, 4’s ...
- L. Say the alphabet on vowels including Y, counting spaces.
Examples:
- 1) JUST ICE: “J, A, S, T, I, B, C, C.”
 - 2) I CAN MAKE IT WORK: A, 1, C, B, N, 2, M, C, K, D, 3, E, T, 4, W, E, R, K.”
- M. Say nouns on the vowels or spaces.
Examples: girls’ names, boys’ names, cities, states, countries, animals, body parts, modes of transportation, fruits, colors.
- N. Alternate between letters and another sequence.
Examples:
- 1) Spell the words and sentences and count;
 - 2) Spell and say the alphabet;
 - 3) Spell and say an equal length word or sentence.

Working from memory

Do any of the above exercises from memory, without actually looking at the words or sentences. Start small with a three- to six-letter word. Go to two short words, two longer words, and work up to three- or four-word sentences and then to longer sentences and finally to paragraphs. See the section below on memorization for techniques to aid memory development.

Paragraphs

There are four paragraphs of varying difficulties included in this manual. You can make others.

- A. Spell the words saying the letters as in the examples above. This builds stamina and span of attention. Spaces between sentences count the same as spaces between words. If you want, ignore the punctuation marks or you may choose to say “quote” for (“), “period” for (.), and “comma” for (,).
- B. Read the words rather than spell them. The separation of sentences can be like spaces. Claps, silence, colors, counting, spelling, etc., can be substituted for designated parts of speech such as verbs, nouns, adverbs, prepositions, or articles, or substituted for three-letter words, or

words starting with a particular letter, etc. For example, clap your hands on the verbs.

IX. COUNTING EXERCISES

Simple counting may seem easy but watch out, the tasks get harder. If counting is too difficult, slow down the action by reducing the tempo or skipping a beat or two between numbers. For children new to counting, writing the numbers to allow reading instead or performing from memory may help. Or try limiting the counting to four or five instead of to 10 or 20.

Simple counting exercises

These are just some of many possible exercises. For more difficulty try counting by twos, threes or other multiples.

A. Count forwards.

On each beat say the numbers in sequence from 1 to 10, calling out “1” on the first beat, “2” on the second, “3” on the third, and so forth. Pay attention to the quality and consistency of your voice. Count to 20.

B. Count forwards while clapping.

Clap precisely to a beat and then count out loud from 1 to 10 in sequence on each beat. Clapping while reciting (or later reading) is a good way to expand your ability to do more than one thing at a time. Now count to 20.

C. Count backwards.

Count backwards from 10 to 2, with and without clapping. Count back from 20.

D. Count forwards-backwards.

Count without stopping from 1 to 10 and then back from 10 to 1. When you get to 10 it should sound like this: “... 8, 9, 10, 10, 9, 8 ...” Try it to 20 and then back.

More advanced counting exercises

A. Silence on designated numbers.

Count as before, but this time don't say a certain number. Bounce or allow one beat for the number, but don't say it out loud. On the next beat or bounce say the number following it in the sequence.

Let's say 4 is the designated number. Take one silent beat on 4 and say all the other numbers. Call out on the beats: “1, 2, 3, (silent), 5, 6, 7, 8, 9, 10.” You can say 4 to yourself inside your head. Don't add unnecessary bounces. Try again but this time leave out 7. Say all the numbers including 4, but don't say “7,” just take a silent jump for 7.

Count backwards and leave out a number.

Leave out two numbers—3 and 8, for example. Try it with 3 and 7. Later try two numbers in a row like 6 and 7. Try this counting backwards.

Count forwards to 10 and then backwards to one (as in Count forwards and backwards on page 70), leaving out 6 on the way up and 7 on the way back. Or try four numbers: leave out 2 and 8 on the way up and 5 and 4 on the way back. Make up your own exercises.

B. Substituting for a designated number

1) Claps

Instead of just taking a silent beat, now try substituting a clap for a designated number. Say all the other numbers on the appropriate beats, but if the designated number is 4, clap your hands on the beat for 4 instead of saying it. Try various numbers and the combinations suggested just above.

2) Words

Substitute words for designated numbers. Start easy. Say a boy's name on the bounce for 5. "... 3, 4, Dan, 6, 7"

Gradually, one step at a time, make it more and more difficult by assigning different kinds of responses to substitute for designated numbers. For example, say a color on 2, a fruit on 5, don't say or do anything on the bounce for 6, say "two" on 8 and clap on 10 Now try the same thing going from 10 to 1.

At each stage you may add the coordination movements to make things more challenging.

C. Counting by multiples

Count by twos, threes, fours, or other multiples. Do it forwards or backwards. Then try the exercises in the section above, leaving out certain numbers and keeping silent, or clapping or substituting another word for the number.

For learning multiple counting sequences you don't know, try writing, then reading the sequence. Write it out large enough to see. Practice it until you are fluent. Erase or cover one of the numbers in the sequence (the one hardest for you) and go through again naming all the numbers including the number you just eliminated. When that becomes easy, both forwards and backwards, hide another number. Learn this and then hide another number, then another, until you can do the list forwards and backwards without looking.

X. IMPROVING LEFT/RIGHT DIRECTIONALITY AND SPATIAL ORIENTATION

Do you confuse left and right, have a fear of maps, get lost easily, and/or blush when north, east, west and south are mentioned? You probably have directionality or spatial problems. The procedures in this chapter improve direction and orientation. Some people increase these abilities quickly but others progress more slowly. I have worked with people who suffered severe loss of these skills after head injuries. What may seem to be minor successes painstakingly achieved during months of work can make a huge impact on these patients' ability to travel alone, confidently, and without losing their way.

I recall a father of one of my head injured patients telling me that his adult son stopped calling on his cell phone every time he went to the store or post office. The son would call and describe the buildings around him and ask which way to walk in order to go home. We worked on these exercises for months making what seemed like tiny gains that would slip away and return, but because he kept working on it, his symptoms decreased and his world expanded.

Some people don't understand the concept that left and right are not fixed locations in external space like north and south. North is always north no matter which way you face, but left and right are egocentric, they move with you as you turn your body. Make sure that this is well understood before starting left/right exercises.

These procedures are described for trampoline but can also be done while jumping on the floor. It's best to begin with a helper calling out the left and right commands. Work this way until left-right turns are correct and automatic. Then skip a few days and practice the drills again for several sessions until mastered. Finally, add complexity as described below to make left and right an accurate reflex in spite of the complexity, distractions, anxiety and time stress encountered in real life situations.

In addition to left/right laterality, these exercises also help control impulsive behavior. Many people don't think of themselves as impulsive, yet they rush into action without being prepared or alert enough to successfully complete intended tasks. Some people can't succeed at unfamiliar or complex tasks from a cold start cold. They have difficulty waking up their at-

tention and need to warm up on easy, familiar tasks before attempting new ones. Highways have long on-ramps in order to give entering cars time to build up their speed. Good pianists take the time to feel the beat inside before plunging into a piece. Impulsive people are more likely to start new tasks without considering the time, skills, or means needed for success. Because they don't think beforehand, they set themselves up for failure. Impulsives lack a "ready, set, go." They just GO. They are in a reflex mode but need to develop self-direction (the ability to be ready for what you are about to do before going into action).

To this end these exercises make use of an extra "control" bounce that comes between the left or right command and the turn. Impulsive people can't wait. A single bounce can feel like an eternity to them. They are so focused on the turn and anxious about getting it wrong, that they literally lose control, jump to the turn, and completely ignore the required extra bounce. Control bounces bring attention to staying present every moment. Rather than taking one step at a time, impulsive people trip themselves up by trying to do everything all at once. This exercise gives a clear signal, an opportunity to recover their awareness as they start to make an effort. Instead of stumbling at the starting gate, going off-sides, forgetting to take their lunch, or stopping for that promised bottle of milk on their way home, they learn to recover their senses soon enough do the right thing.

Beginning left/right exercises

Left/right—non self-directed

The basic exercise goes like this: the helper waits for the jumper to bounce a few times and then calls, "Right!" (or "Left"). This command is given exactly at the bottom of a bounce. The jumper hears the command but has to bounce once (the control bounce) *before* turning 90° to the right. After the turn, the jumper continues bouncing facing the new direction, and listens for the next command. After a few more bounces, the helper again calls "Left" or "Right," taking care to say the command precisely at the bottom of a bounce.

Some people can do this easily but others, especially children, need help and lots of practice. Bring the task demand well below the stresspoint. To make it easier, give the jumper a cue by saying "Ready" just before the command or by telling the jumper the direction about to be called. Say, "This time I'm going to say, left. Which way is left? That's correct. OK, here comes, 'Left!'" If this is too difficult, stop the bouncing, ask beforehand which is their right hand side, where they should face if you say "Right," have them make a practice turn to the right, then return to the starting direction and attempt one correct right turn as above. Also try giving

the next command exactly three bounces after the previous turn to give the jumper time to prepare for the next command.

Sometimes people are immediately successful for the first few attempts but then lose control because they get anxious. The goal is 10 successes in a row, but three may be more appropriate to avoid frustration. When the jumper is able, try varying the timing by sometimes waiting for many bounces and other times giving the command immediately on the next bounce. Surprising the jumper by varying the timing of the commands make the task harder. To make it even harder say “Left” or “Right” immediately on the control bounce of the previous pattern. Look for errors such as turning the wrong way, skipping the control bounce, or adding too many bounces before turning.

The basic exercise is as follows:

- 1) The “left” or “right” command on the first bounce
- 2) A pause without doing anything on the second bounce
- 3) A turn in the correct direction
- 4) Jumping in the new direction while waiting for the next “right” or “left” command

After making an error the jumper should be asked to recall if the command was left or right, if the control bounce was correct, and if the turn was correct. Practice doing this command sequence again without error before going on. Here is a sample sequence. Vary it by reading forward, backward, up-to-down and down-to-up. Make up your own sequence.

“Left”	“Right”	“Right”	“Left”
“Right”	“Left”	“Right”	“Left”
“Left”	“Left”	“Right”	“Right”

Work toward 10 correct responses in a row.

Left/right—self directed

Instead of the helper commanding the turn, the jumper calls her own left or right commands. The procedure is otherwise the same as before. The jumper says, “left,” takes one silent bounce, makes a 90° left turn, bounces in the new direction, and calls the next left or right when ready.

Self-direction can be confusing at first. Self-initiated behavior is an important brain function, not well developed in some people. These exercises help develop self-direction. Try for 10 correct self-directed turns out of 10 tries as described above.

Variations:

1. Opposite left/right—non self-directed
This time turn in the opposite direction to what is called out. When your helper says “Right,” you make a left and on a “Left” command you make a right turn. Try for 10 out of 10. Don’t forget the control bounce.
2. Opposite left/right—self-directed
Now you say “Left” or “Right,” make a silent bounce, and then turn in the opposite direction. Try for 10 out of 10.
3. Double left/right
In double commands, two directions: “Right-right,” “Right-left,” “Left-right” or “Left-left.” are said quickly on one bounce. In response the jumper bounces again (control bounce), turns and bounces twice before turning the second time. If the timing of the command is not precise, the jumper can become confused as to when to make the control bounce.

For example, bounce one say, “Left-left,” bounce two is silent followed by a left-face turn landing in the new direction; bounce three is silent; bounce four is also silent followed by a left-face turn landing in the new direction. Keep bouncing in this direction, waiting for the next double command, “Right-left.” Then, comes the control bounce, turn right, bounce, bounce, turn right, bounce, and so on.

Double commands can be: non self-directed, self-directed, non self-directed opposite, self-directed opposite. Triple and more commands increase left-right awareness as well as memory. Try for 10-out-of-10.

List of double commands:

“Left-left”	“Left-right”	“Right-right”	“Right-left”
“Right-left”	“Left-right”	“Right-right”	“Left-left”
“Right-left”	“Left-right”	“Right-left”	“Left-right”
“Right-right”	“Left-right”	“Right-right”	“Left-right”
“Right-right”	“Left-right”	“Right-left”	“Left-left”
“Left-right”	“Left-right”	“Right-left”	“Left-right”

More complicated left/right exercises

1. Counting after the turn
Try the following: say, “Left” or “Right” on the first bounce, be silent on the control bounce, then turn left or right, and as you land after the turn, say, “One.” Continue to bounce a few more times, give yourself

the second command, take the control bounce, then turn and say, "Two." Bounce a few more times, give the third command, take the control bounce, turn and say, "Three." If you mess up, begin again. Try to count up to 10. Now try the same exercise counting backwards from 10 to one. Try counting forward and backward by 2's, or 3's.

2. Say the alphabet after turns instead of counting.
3. Spell your name after turns.
Start with your first name then try your whole name. With two words, there is a space and the possibility of a silent bounce. Try it first ignoring the space, but later insert a silent bounce for it.
4. Spell a sentence after turns.
The words can be written and visible or visualized in memory. Just as above, spell the words after the turn. Say, "Left," on the first bounce, take a control bounce, turn and say the first letter. Start with a simple phrase and work your way up to longer, more complicated sentences. For example: "Rock and roll," or "I love mom," for simple ones and "This is a more complicated sentence," or "Mississippi is easier to spell than Connecticut or Massachusetts." Using the space as a silent bounce makes the task more complicated.

Advanced left/right exercises

Continuing math problem

When the jumper can do the above easily without error, add a continuing math problem. While the jumper makes left and right turns as above, the helper calls out numbers in a continuing math problem. The jumper does the math and answers the problem as he continues the left/right turns. Continuing math problems work like this: The helper poses a math problem, and the jumper calls out the answer (a number). The helper then tells the jumper what mathematical function to perform on that number, thus posing the next problem. The jumper calls out the answer, and the process continues. Here is an example:

Helper: "5 plus 3"
Jumper: "8"
Helper: "Minus 6"
Jumper: "2"
Helper: "Divide by 2"
Jumper: "1"
Helper: "Minus 3"
Jumper: "Minus 2"

The jumper is allowed as much time as necessary. The base number must be remembered, the new number must be also, the math worked out, and the new answer remembered as the jumper self-directs to give the answer precisely on a bounce.

Start easy and work up to difficult both in terms of the math problem and the timing. The helper makes it easy at first by allowing plenty of time and using small positive numbers, giving hints to remind the jumper what the new base number is, and by saying, "Get ready!" just before giving the problem. Later the helper increases the difficulty by using larger numbers (142 minus 51 is harder than 142 minus 42), minus numbers (minus 2 plus 8 is harder than 2 plus 8), and more divisions and multiplications. He stops giving "Get ready" cues and changes the timing by giving the problem at various places in the left/right sequence. For example, calling, "Plus 3" well before the left/right command is easiest. Slightly harder is giving it on the control jump. Saying it just at the self-directed left or right command or while executing the turn is much harder. Work for 10 correct turns in a row. As they improve, jumpers can call out their own math problem during the exercise.

Clap-turns

Two new commands "Clap-left," and "Clap-right." are introduced. The command "Clap-left" must be stated loudly, clearly and fast enough to last within a single bounce and not spread over two. To perform this correctly, the first steps are the same as above: The command ("Clap-left") is called out on bounce one and bounce two is a control followed by a left turn. Here comes the change. Instead of counting as before, the jumper lands with a hand clap on bounce three and on the following bounce says, "One," the first count. As before, the jumper keeps bouncing in the new direction until the second command is given.

Bounce #1: Say "Clap-right."

Bounce #2: Make a silent bounce then a right turn.

Bounce #3: Clap hands.

Bounce #4: Count the number: 1 after the first turn sequence, 2 after the next, 3, 4, 5, and so on.

If the second command is a "Clap-right," the first bounce is a control jump, then a right turn into a clap on the next bounce, and a count of "Two" on the next. Keep bouncing while getting ready for the next command.

The four possible commands, "Left," "Right," "Clap-left," and "Clap-right" are to be called in random order for 10 correct responses in a

row. What makes this difficult is that the bounce immediately following the turn is a number (when the command is just left or right), but it's a clap followed by a count bounce when the command is "Clap-left" or "Clap-right." This is a lot to remember and requires self-control and self-awareness.

For even more complexity, require a turn in the opposite direction on left and right commands ("Left" means "Right") but on "Clap-left" and "Clap-right" turn in the direction stated. Try doing this while also spelling your name instead of remaining silent on the control bounce. Or try naming a color, flower, car brand, city, state, country, person, etc. on the control bounce. A continuing math problem can be added at this level also.

External Spatial Maps

Working your way to North, East, West, and South

These exercises resemble those in the left/right section above. A command is given and the jumper must take a control bounce before turning to the appropriate position. As before, there are two levels: non self-directed (helper calls the location) and self-directed (jumper calls the location). Other variations can be added such as turning to the opposite of the location called.

External maps are physical places located outside our body in real space. The map stays the same whether you face left, right, front or rear. When you turn left, north is still in the direction of the fireplace and opposite to south, which remains towards the window. Both systems of orientation are not to be confused and one needs to be able to interweave their use. Usually six items can be used: letters, numbers, colors, shapes, boy's or girl's names, or north-east-west-south. In some cases it is necessary to start with just three, two or even one item. If you use words from a current vocabulary list, the student gets a double benefit—improved spatial ability at the same time as learning new words.

A map is created and memorized as follows: Animals are a fun way to start. Assign a different animal name to each side of the trampoline. For example, the side with the picture on the wall is the lion. The side with the window is the ape; the side towards the lamp is the mouse; and the door side is the dog.

Teach the map locations by directing, "Point to the mouse." "Point to the dog." "Point to the lion, and, finally, point to the ape." Repeat asking in varied order several times for each animal. Another question: "Which animal am I pointing to now?" should be included in the training. Should the memory of the map evaporate during the exercise, stop to re-train the

names and their locations. Some will find this exercise to be easy, but others won't be able to remember the four items and their locations.

To make the task easier:

1. Put pictures (lion, mouse, ape and dog) at appropriate sides.
2. Prepare the jumper in advance—say which name will be next, have the jumper point in that direction, and then give the command. For example, "I'm going to say "Dog." "Point to the dog." "OK, ready? Dog."
3. Give the jumper extra time to remember the direction by allowing two or more control bounces before turning to the location.
4. Use actual objects in the room like window, door, picture, or chair to make the map more concrete.
5. Have the helper and jumper switch roles. The original jumper makes up the map, gives the commands, and monitors the new jumper's success.
6. Instead of four items at four locations, start with one, two or three: "This direction is lion and here is dog. Face me. Ready, dog. Great! Get now, ready, Lion."

Some people have a difficult time with this exercise, especially if they have suffered a brain injury. Don't be impatient or get upset, or judge the process according to preconceived expectations. Just because it's difficult, don't give up. Take it easy. Be sensitive. Adjust and readjust the task to match the stresspoint. External directionality is an important skill. Stick with it no matter how many times you have to come back to the same exercise. Success can come even after a long period of seemingly no progress.

Multiple commands can be added for more complexity and to improve memory. You might say, "Dog-lion." In this case the jumper takes the extra bounce turns to the dog, bounces (only once) facing the dog, and turns to the lion. You can include "Left" and "Right" commands. Say, "Dog/Left," the jumper takes a control bounce, turns to the dog, bounces once facing the dog, and then turns left. Try adding a second map to the original to make eight names for four locations. For example an animal map with family names. The location of lion would be the same as Dad, ape = Mark, dog = Sue, and mouse = Mom. The names in either map are called out in random order. For some people, compass directions are especially difficult. So wait before introducing them. Make the map's north correspond the actual north.

Put this information to work in everyday situations. Ask, “Where is the front of the house?” Indicate north (or the other directions) when driving, eating, or waking around the block. Ask, “We were just walking towards the north and turned the corner; now what direction are we facing. Refer to the direction of visible or important landmarks such as a tall building, church steeple, mountain, etc. If the mountain is over there, which direction (N, S, E, or W) am I facing?”

Can you draw a map of your room, house, school, block, town, etc.? If not from memory, make one while standing in the actual room or house. Use the map to navigate through the place in real time.

External map exercises

1. One map, one command, non self-directed:
After assigning names and positions and teaching the jumper to know where they are, the helper picks one and calls it precisely on a bounce, the jumper takes one control bounce before turning to the direction indicated. Some turns will be 180°, some 90°. If the helper calls out the name in the same direction as the jumper is already facing, no turn is indicated, but impulsive people can't help but to turn anyway. Work for accuracy of direction and timing. Try for 10 correct in a row.
2. One map, one command, self-directed:
This time the jumper says a name, takes the control bounce, and then turns toward that location. Make sure the name is said exactly on the bounce. Try for 10 out of 10.
3. One map, one command, move opposite, non self-directed:
The helper calls out the name and the jumper bounces and then turns to the location indicated by the name. Try for 10 out of 10.
4. One map, one command, move opposite, self-directed:
As above but the jumper says the name, takes the extra bounce and then moves opposite. Try for 10 out of 10.
5. One map, left/right, one command:
Helper calls out “Right,” “Left” or one of the four direction names. The jumper takes the extra bounce and turns appropriately. Next, try going opposite to the command. Then try going opposite on the names but to the named direction on the left/rights. Or reverse it: turn opposite for left or right but as indicated for names. Try all these in self-directed mode where the jumper calls the commands.
6. Reorienting maps:
To create more flexibility in spatial awareness, try switching two of the

names: The mouse and ape stay in the original positions but the lion and dog are switched. Or try rotating the entire map by 90° , which places the lion, for example, to the left of where it was, and all the other animals also move 90° . Switch again to other new locations such as 180° from the original position.

7. One map, multiple commands:

Multiple commands can be non self-directed, self-directed, non self-directed opposite, self-directed opposite. Use double, triple, or more commands to train high-level spatial and memory skills. Multiple commands must be given together at a single bounce. The helper says, "lion-mouse," one bounce, the jumper takes a control bounce, turns to the lion, bounces again, and then makes a second turn, this time to the mouse. Again, it's: command, bounce, turn, bounce, bounce, turn, and keep bouncing to wait for the next set of commands. Try for 10 correct in a row. Multiple commands may include left/right and any of the animals with correct control bounces and turns expected in response.

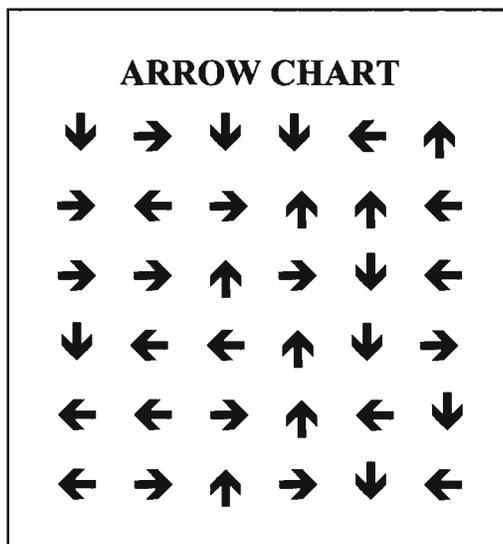
8. Multiple maps

Make up a new map with each direction having two names. Adding left/right makes 10 possible command. This gets quite complicated, so go slowly.

To make it harder: Rather than waiting for several bounces following the previous action, give the new command on the control bounce or on the bounce after the turn of the previous action. Remember: Always say it on a bounce, and a control bounce must follow the command.

Include counting, spelling and naming objects from a specific category or doing continuing math problems as described before.

XI. ARROW CHART EXERCISES



Basic arrow chart instructions

You must do two things simultaneously: Name the direction of the arrow out loud, and move your hands in the direction as the arrow. The first arrow points down. So you must say, "Down," and move your hands downward.

Do not move the arms first or say the word before moving. Both must happen simultaneously.

The physical movements are to be done in a specific way with both arms held straight out in front of you. They are moved at the same time, not touching each other, up, down, left, or right, according to the exercise. In addition, both palms must face towards the direction of the movement. The palms face up when the arms move up and face the floor on downward movements.

Left and right movements are slightly more complicated. The hands are held right next to each other. The arms are parallel, with one hand held a few inches above the other, without touching. As before both palms must face left towards the direction of the movement, to the left or right. The remaining question is, which hand is supposed to be held above and which below the other? For movements to the left, the left hand should be uppermost, parallel to but directly above the right. So when the arms are to move

left, both palms should face left, and the left hand should be higher than the right. Rightward movements are done exactly the opposite way. The arms move together to the right, both palms point right, and the right hand is above the left.

The arms should move from the shoulders with the elbows slightly bent. Try to make the arm movements fluent without raising the shoulder. Keep your head loose and level and your weight on both feet if you are standing. Try to feel your arms moving as if through water, smoothly without jerking.

The arrows are to be read in sequence, one at a time. Start with the upper left and proceed through as in normal reading. If this is difficult for you, try one line at a time and slow down the pace.

Change the sequence by turning the chart upside down or sideways and try reading through it backwards or vertically up and down the columns. Always remember to turn your palms to face toward the appropriate direction and to say the word at the same time as you move. Try to make it through without error three times in a row before attempting more complex exercises.

Find a tempo for the best speed with the least errors. Explore going at various tempos but try to keep the speed consistent as you read through the chart. Some people have great difficulty in slowing down appropriately for difficult tasks. It is very important to learn to take more time when necessary and to self-direct the pace. Compulsive, unconscious speeding is a common cause of failure. The more one can identify the anxious impulse to lose self-control, the greater the chances of learning to self-direct appropriate action for success.

External pacing devices such as a metronome or trampoline help increase the range of speeds. Learn to go more slowly (by adding extra beats or jumps) as well as faster. Then try doing it on a trampoline with the complex foot patterns described above. The goal is to develop an ease of confidence and flow as you train your attention to hold more complexity.

Say the same and move the same

This is the entry-level task. If the arrow points down, say, "Down," and move your arms, palms down, from up to down. The word and movement should happen together. Name and move according to each arrow in the sequence. If this is easy, go through the whole chart. If not, reduce the task size. Follow the directions above.

Say opposite and move opposite

If the arrow points down, you say, “Up,” and move your hands up. If the arrow points to the left, say and move right (palms right, with the right hand above the left). Too easy for you?

Say same and move opposite

On right arrows, the hands move left while you say, “Right.” Notice lapses of attention and the sudden loss of memory for what you are supposed to be doing. Try to catch your errors and if you do, stop and start again at the beginning. It helps to repeat the instruction, “Say the same, move the opposite,” to yourself as you start or if you forget what you are doing. Are you moving and speaking simultaneously? Try this one on the trampoline in time with the bounce. Try it on every other bounce and then speed up to every bounce. Try doing it with complex foot patterns!

Say opposite and move same

Now go through the chart saying the opposite but moving in the same direction as the arrows. Whoa! Notice how difficult it is to switch from one set of directions to the next.

Alternating between instructions

When you get good at this, do one line this way and the next line as in the previous paragraph. Alternate every other or every third arrow.

Now you can try the advanced arrow chart. You can do as above attending to just the direction indicated by the symbol. But the differences in the shape and color of the arrow provide additional complicating details. You can do additional activities with this chart. Skip all the white ones or skip just the white triangles. Count the white arrows. Say the same/move the opposite on white and reverse it on the black, and so forth.

XII. USING THE TRAMPOLINE AS A STUDY AID

Spelling

1. Write the word on a chalkboard (e.g., Massachusetts)
2. Spell it forwards while bouncing.
3. Spell it backwards while bouncing.
4. Reverse direction on a clap.
5. Clap your hands on the vowels (including Y) instead of saying them. Do this forwards and backwards through the sequence.
6. Change the spelling on the chalkboard to massqchksettg and repeat steps 2-5 but spell using original letters.
7. Change more letters, (e.g., Mwssqcvksztb) and repeat steps 2-5 but spell using original letters.
8. Repeat steps 2-5 from memory, without looking at the word.

Learning vocabulary lists (languages, science, etc.)

1. Pick five words you want to learn (as you get better you can use more words).
2. On each word, repeat the above procedures to learn to spell each word.
3. Print five words from the list on the blackboard or in big letters on your computer.
4. Say the sequence of words while bouncing, then say it backwards.
5. Erase one of the words and repeat #4, including the word you erased.
6. Erase another word from the list and repeat #5.
7. Erase more words until you can bounce and say all the words from memory.
8. Without looking, say the word and then spell each of the words while bouncing.
9. At this point, you will be quite familiar with each word but not with its definition. Don't learn both the word and its spelling at the same time. Work on the words until their spelling and pronunciation are familiar

and mastered. At this point, a child may already know the meaning because he or she knows the word. If not, try the following procedure:

Make up a sentence that gives a clear meaning to the word. Write the sentence on the board. Say the words while bouncing. Erase one word, and then another, until the child can repeat the whole sentence from memory. Continue by rewriting the sentence and spelling the words of the sentence by erasing more and more letters in each word until there are no letters left and the student can spell the whole sentence from memory.

Teaching letters and numbers to young children

You can teach your child to read numbers and letters using these techniques. The secret is to start with just two letters. Make a target one line long (about 6 items) by writing large letters on a board or paper. Use two letters that are easy to distinguish, like a and b: “a, a, b, a, b, b” (not i and l). Teach her to read the line by saying each letter on successive beats or on every other beat. When fluent add another set of six of the same letters: “b, a, b, a, b, b.” When she can do that easily, have her read both lines of letters. Then add more lines of six until you know she really knows the letters.

Start another chart using one of the original letters and a new one: “a, t, t, a, t, a.” Follow the same procedure as above. Avoid anxiety and frustration by taking frequent breaks, rewarding every success and retreating to an easier task when necessary. Add the “b” to the other letters: “a, t, b, t, a, b.” Continue printing new charts by mixing new letters, one at a time, with the already learned letters. The lines of letters will grow and more than one line will become necessary as more and more letters are included in the mix.

If the child has a hard time with a particular letter, call attention to it by making it special. For example, by having her clap on ‘q’ or say a color on ‘p.’

The same approach can be used for numbers, both single and multiple digit numbers. You can even do this for words such as all the colors: “Red, blue, blue, red, blue, red.” Follow the same procedure as with letters by adding a new word with one of the known words and then all three known words.

CHARTS

WORDS AND SENTENCES

BIG

ATE

GREAT

JUSTICE

JUST ICE

THIS MAN WILL WORK HARD

I CAN MAKE IT WORK

**WE LOVE TO SAIL ON A SEA OF
BLUE**

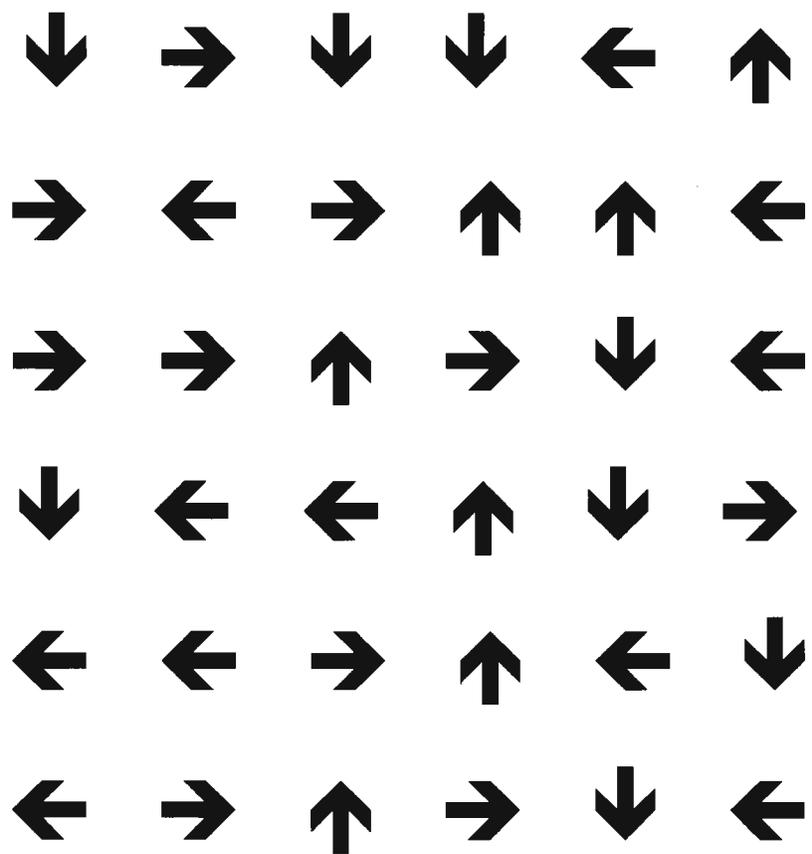
**THE PLAYERS ATE A TASTY
LUNCH IN WASHINGTON WITH
A FRIEND**

**THE CROWN AND GLORY OF A
USEFUL LIFE IS CHARACTER. IT
IS THE NOBLEST POSSESSION
OF MAN. IT FORMS A RANK IN
ITSELF, AN ESTATE IN THE
GENERAL GOOD WILL,
DIGNIFYING EVERY STATION
AND EXALTING EVERY
POSITION IN SOCIETY. IT
EXERCISES A GREATER POWER
THAN WEALTH.**

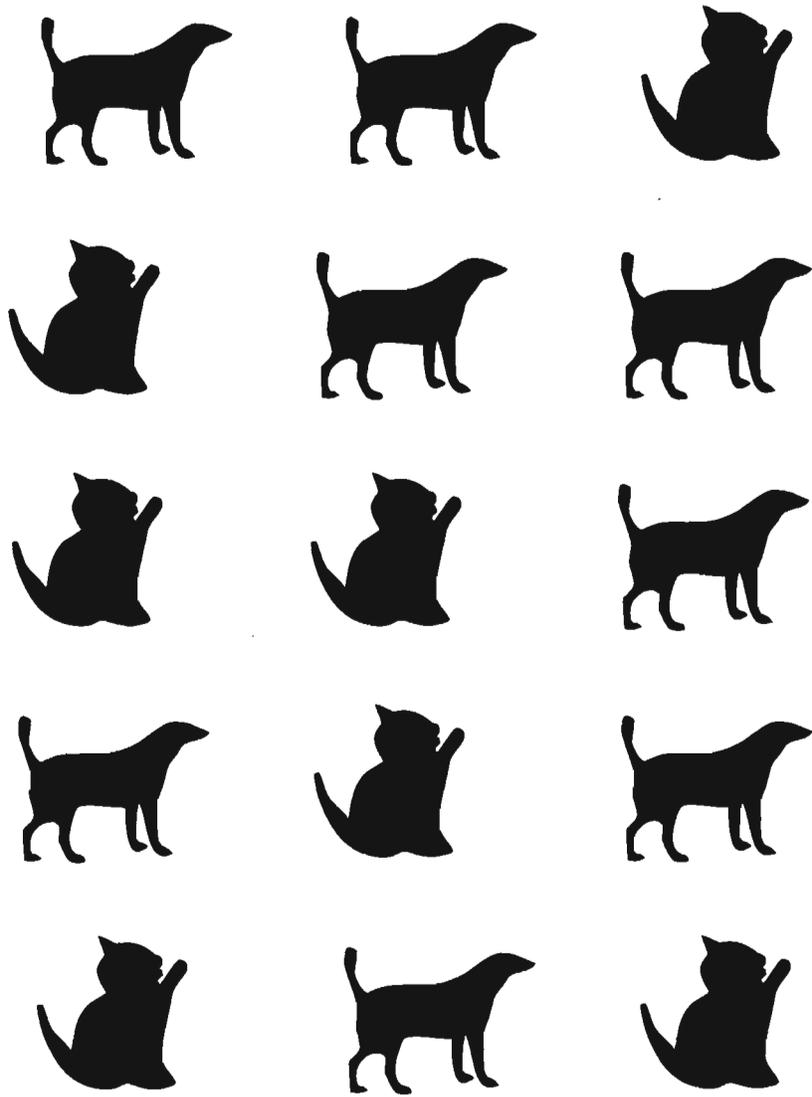
**ONCE THERE LIVED A KING
AND A QUEEN IN A LARGE
PALACE. BUT THE KING AND
QUEEN WERE NOT HAPPY.
THERE WERE NO LITTLE
CHILDREN IN THE HOUSE OR
GARDEN. ONE DAY THEY
FOUND A POOR LITTLE BOY
AND GIRL AT THEIR DOOR.
THEY TOOK THEM INTO THE
BEAUTIFUL PALACE AND MADE
THEM THEIR OWN.**

**ONCE THERE WAS A LITTLE
PIG. HE LIVED WITH HIS
MOTHER IN A PEN. ONE DAY HE
SAW HIS FEET. "MOTHER," HE
SAID, "WHAT CAN I DO WITH
MY FEET?" HIS MOTHER SAID,
"YOU CAN RUN WITH THEM."
SO THE LITTLE PIG RAN
AROUND AND AROUND THE
PEN.**

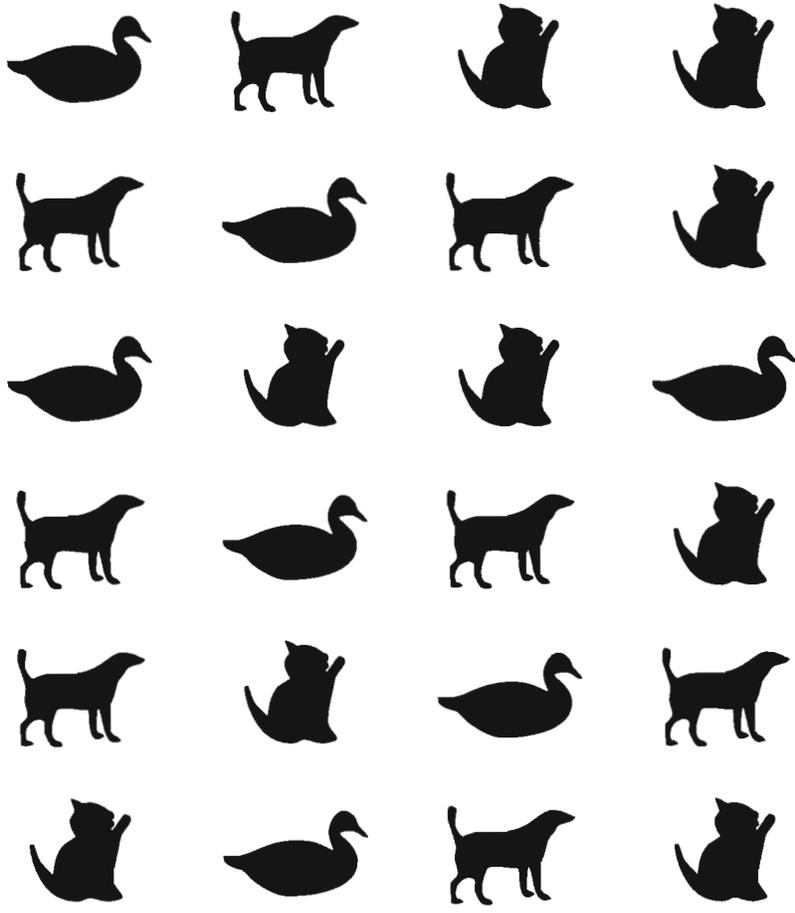
ARROW CHART



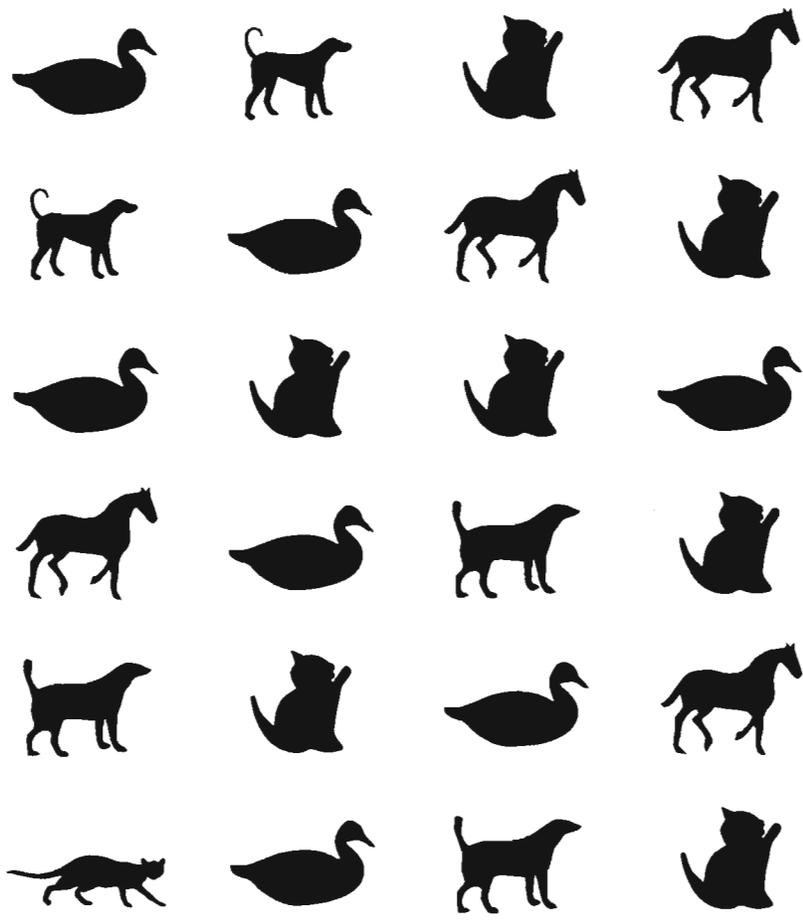
MEOW - BARK



MEOW – BARK - QUACK



MEOW – BARK – QUACK - NEIGH



LETTER CHART

O	F	N	P	V	D	T	C	H	E
Y	B	A	K	O	E	Z	L	R	X
E	T	H	W	F	M	B	K	A	P
B	X	F	R	T	O	S	M	V	C
R	A	D	V	S	X	P	E	T	O
M	P	O	E	A	N	C	B	K	F
C	R	G	D	B	K	E	P	L	A
F	X	P	S	M	A	R	D	M	G
T	M	U	A	X	S	O	G	P	B
H	O	S	N	C	T	K	U	Z	L

BLACK NUMBER CHART

5	25	13	32	27	39
12	29	8	19	45	2
48	34	11	42	15	37
9	18	33	1	22	4
16	23	41	30	40	43
3	28	14	44	6	47
26	31	38	46	10	20
7	21	36	24	17	35

BLACK AND WHITE NUMBER CHART

④	⑦	②	⑥	③
⑧	②	⑨	①	③
④	⑤	⑤	⑧	①
③	⑥	⑩	⑥	③
⑧	②	⑦	⑥	④
⑩	③	④	①	⑨

ATTENTION & MEMORY & TRAINING

STRESS-POINT
LEARNING
ON
THE
TRAMPOLINE

The exercises presented here build attention and memory skills for everyone regardless of age, work experience or level of education. People already achieving high levels in sports, academics or arts performance as well as those with learning difficulties, reading deficits, emotional problems, or physical trauma can benefit. With practice and patience, lasting changes take place deep in the brain, in the chemistry and physiology of attention.

Activities covered in this text can be done alone or with others, daily or less often. Families can make this an after school or evening activity. Teachers can instruct individual students or entire classes to attend with more power. Therapists can help patients think more clearly, improve self-confidence, and recover lost physical and mental abilities.

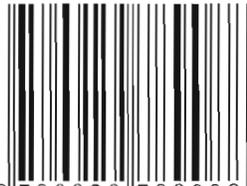


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