



## How children learn motor skills

Physical development consists of two major components: physical fitness and motor skill development. Physical fitness includes strength, endurance, flexibility and body composition. Motor skills include locomotion (running, walking, jumping, hopping), manipulation (throwing, kicking, catching, bouncing), and stability (bending, twisting, rolling, dodging).

### The Science of Learning Motor Skills

To perform a task or movement, our brain sends signals to our motor units (individual nerves and collections of muscle fibers) at precise intervals to orchestrate the contraction of muscles throughout our body.

Learning a motor skill is like writing a computer program to a disk – the program, imprinted on the brain, plays back as a motor reflex. The method of imprinting a motor skill "program" on the brain is **repetition (i.e., "practice, practice, practice")**.

**Over time, basic motor skills can be combined and built upon to master more complex skills.**

### Implications for Teaching Motor Skills

There are several implications for learning, based on the way our bodies acquire new motor skills. To achieve the greatest success, children should:

- 1 Start with proper form or technique**
- 2 Get plenty of repetitions to "program" their mind and body with the technique**
- 3 Build up from a solid base of fundamental skills to the more complex skills over time, seizing key developmental windows**

### Using Proper Technique

**Learning a skill improperly is, in many ways, worse than not learning it at all.** Instructors of complex motor skill sports often describe having to get new students to **"unlearn" their current technique in order to improve** – or taking a step back in order to take a step forward.

**Starting off with proper technique is essential, particularly for the foundation skills that form the basis for the complex skills** children need to learn later. Practice doesn't make perfect, "perfect practices makes perfect."

**Movement skills become ingrained in "muscle memory" through repetition.** Children cannot master motor skills by watching or listening or standing around while others get their turn. They master them by doing – over and over and over again. Proper technique, repeated extensively, leads to mastery over time.

### Building Skills During Key Developmental Windows

Just as the brain is ready for certain types of academic material (e.g., reading, counting or foreign languages) at certain stages, so too are the mind and body ready to learn certain kinds of motor skills and make different types of physical adaptations at certain ages.

Children need to build a strong foundation of fundamental skills in order to be able to learn and perform more complex sports skills as they mature. **To achieve full potential, new skills should be consistently introduced when the child is ready to learn them.** Introducing new skills too early will **lead to failure** and can be discouraging.

### The Bottom Line

**Children who learn proper technique, get plenty of practice, and build up from foundation skills to complex skills at the proper developmental times will be in a good position to reach their full potential.**