

Name: _____

JUGGLING AND THE WHOLE BRAIN

Directions: Read the following information about juggling and answer the questions in the space provided.

Why juggle? Well, let's find out some of the best reasons most of us don't know about.

- Juggling exercises and combines the "right" and "left" brain. When you first learn to juggle, you are breaking the steps down into small learning steps. You are using what psychologists call the left brain, the logical, critical, and academic side. Once you have learned how to juggle, you move into "right" brained thinking, the side that is more intuitive and holistic. When this happens, juggling becomes automatic and relaxing.
- Research has shown that there is a direct relationship between hand-eye coordination and the ability to read and write. The eye crosses the midline of the body and the movement improves concentration, encourages sequencing, and increases tracking.
- Juggling turns everyone into a participant. We tend to sort ourselves out around the age of 12 into spectators and participants. With juggling, everyone plays. Juggling is non-competitive when done individually, and requires cooperation when two or more work together.
- Juggling is an activity at which males and females can be equally skillful, and where size and strength are not advantages. Everyone participates, even those who are usually side-lined by athletics.
- Juggling provides a great deal of carry-over to learning other physical skills. Many athletes have learned that juggling improves reflexes and spatial awareness, accuracy in throwing, confidence in catching and brings a natural sense of grace and rhythm to their movements.

A new study published in the journal "Nature" found that learning to juggle may cause certain areas of your brain to grow. German researchers divided 24 non-jugglers into two groups and assigned one group to practice juggling for three months. The scientists performed brain scans on the volunteers using magnetic resonance imaging, or MRI, before and after they learned to juggle. The study found that volunteers who did not train to juggle showed no difference in their brain scans over the three-month period. However, those who now acquired the juggling skill demonstrated an increase in grey matter in two areas of the brain involved in visual and motor activity. Grey matter is closely packed neuron cell bodies involved in muscle control, sensory perceptions, such as seeing and hearing, memory, emotions and speech. Interestingly, increase in brain size does not last. After three months of no practice, the group that learned to juggle lost their gained brain power and the enhanced brain regions decreased in size. "The brain is like a muscle, we need to exercise it," says Dr. Arne May. While the effects appear to only be temporary, the study provides an example of how activity may have growth benefits on the brain.

1. *What are four (4) benefits of learning how to juggle?*

a. _____

b. _____

c. _____

d. _____

2. *According to the study, what can grow in size inside your brain because of juggling AND what is their function in the brain?*
