

Applying Newton's Laws of Motion to Baseball Pitching

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The April 2009 edition of *Mechanical Engineering* magazine profiles Mike Marshall, the former major league baseball hurler who teaches a pitching methodology based on Sir Isaac Newton's three laws of motion.

Marshall, who played in the major leagues for 14 years and won [baseball](#)'s most prestigious pitching honor, the Cy Young Award in 1974, believes "pitchers of all ages would be very well served by learning and applying the three laws of motion correctly," says the article in [Mechanical Engineering](#), the flagship publication of ASME.

Proper biomechanics based on Newton's law of inertia, law of acceleration, and law of reaction, says Marshall, could solve basic flaws in pitching delivery and promote physical health and career longevity. Marshall, the recipient of a Ph.D. in exercise physiology from Michigan State University in 1974, believes that traditional pitching methodologies advanced by baseball coaches at all levels contradict the laws of physics.

Marshall applies Newtonian principles to every aspect of a baseball pitcher's windup, arm and leg movement, delivery and follow-through. Mastery of the three laws, says Marshall, could erase flaws in leg thrust, rotation of the body, release point of the baseball toward home plate, and position of the shoulders, forearm and elbow of the throwing arm.

Marshall's approach is to reduce "the unnecessary force that bones, ligaments, tendons, and muscles must overcome" when a pitcher throws a baseball, according to *Mechanical Engineering*.

The article concludes: “According to Marshall, the traditional pitching techniques are almost always taught with a minimal understanding of the underlying biomechanics - this practice must be replaced with the vastly increased knowledge and understanding we have acquired through medical science.”

More information: The April 2009 issue of *Mechanical Engineering*, including the article “Coached by Newton,” is available online at www.memagazine.org

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