POSE METHOD OF RUNNING

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USAT Art & Science Symposium

Portland, Oregon

September 21-23, 2008

"If you think education is expensive,
try ignorance."

- Derek Bok

Why do we need a standard?

Currently there is no consensus in the running community on a standard technique of running.

“We need a method if we are to investigate the truth of things.”

- Rene Descartes

Technique is natural & different for every runner, or is it?

“Running technique is primarily an individual matter. A sound rule of thumb when it comes to running technique is to leave it alone.”

“Do what comes naturally, as long as ‘naturally’ is mechanically sound until comes naturally.”

- Ken Doherty

“Foot plant in running has a pattern: in sprinting on the ball of the foot, middle distance – it is the metatarsal arch area, in long distance – the heel is the first contact.”

- Toni Nett

Runner's World

Injury occurs to all but the very luckiest of runners, so you have best be prepared if a niggle comes your way.

-Runner's World Guide to Running, 2006.

The exorbitant annual rate of running injuries clearly suggests that our past and present approaches to running are not working.

Running injuries

85% of all runners get injured every year.

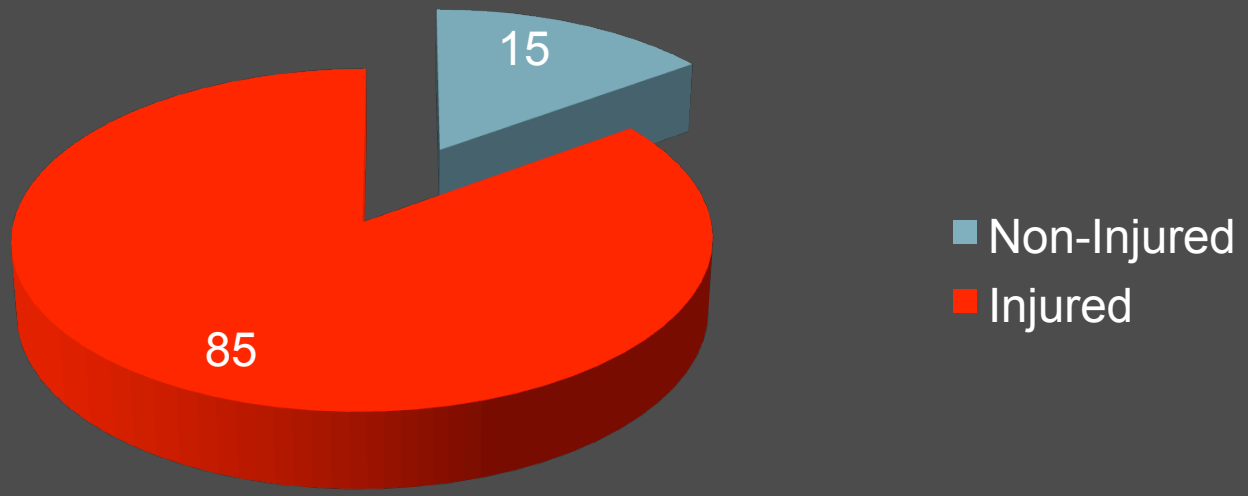


Figure 1: Data Source: Dr. Karl B. Fields, ACSM 2005

Four theoretical paradoxes

1. Running is a movement that exists in the gravity field, but there is almost no consideration of its influence on running technique.

2. Running is considered to be a “natural exercise”, but the definition of “natural” is unclear;

3. Despite the fact that the science of running is the oldest and biggest research field in sports, but “there is no commonly accepted running technique model” *(A. Nitro, 1987)*;

4. It is conventional wisdom that improper movement is the cause of injuries, but there is no “scientifically proven” interdependence of these two in the running field;

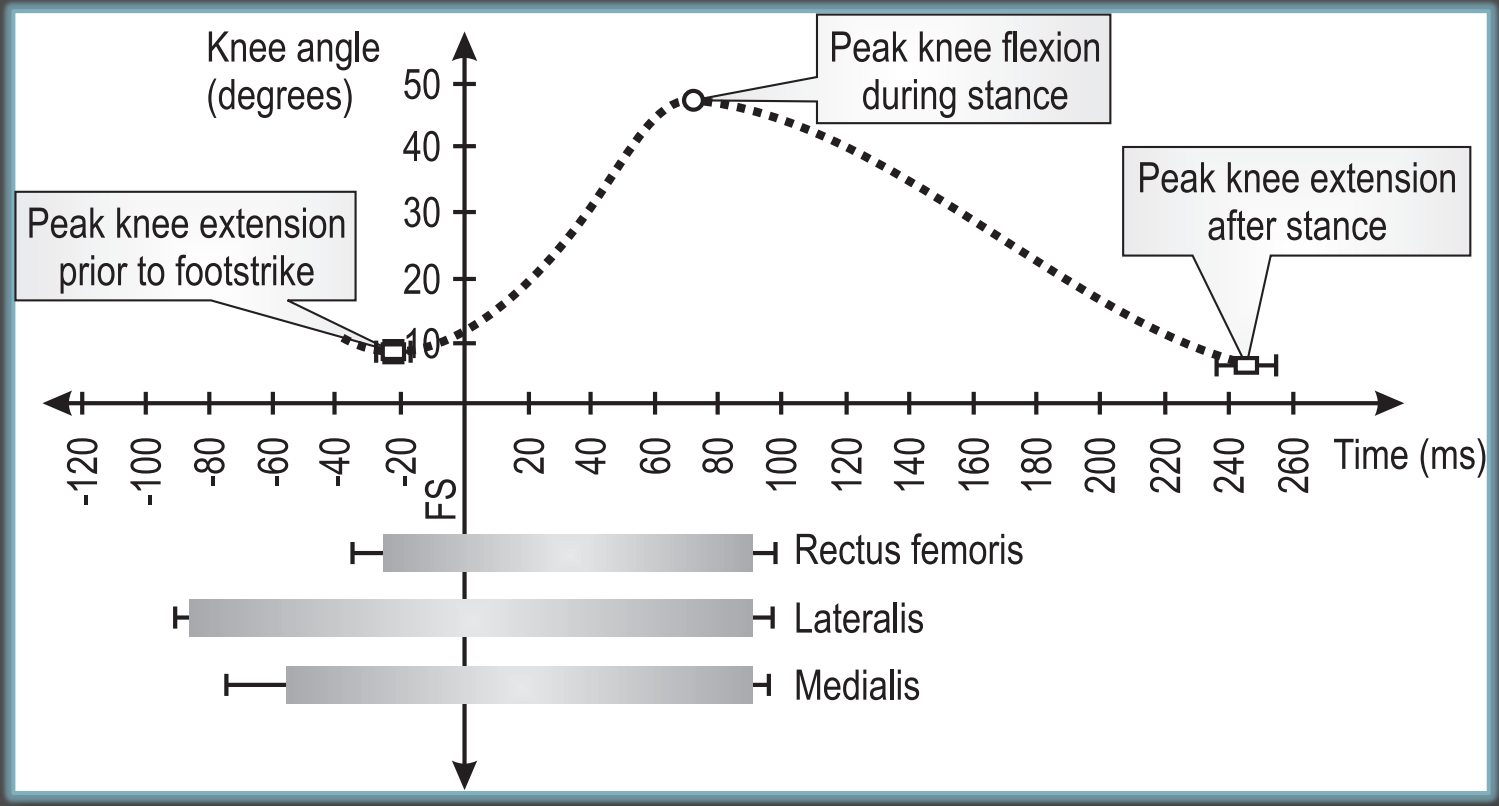
Four practical paradoxes

1. Running has some technique, but still is not approached as a skill;
2. There is a necessity to learn technique, but there is no method of teaching it;
3. Running is a technical exercise, but there is no concept of errors;
4. Running is simple, but “the rate of injuries is great” *(W. B. Krissoff, 1979, G.G.Guten,1997)*;

Three rules that change what we define as running

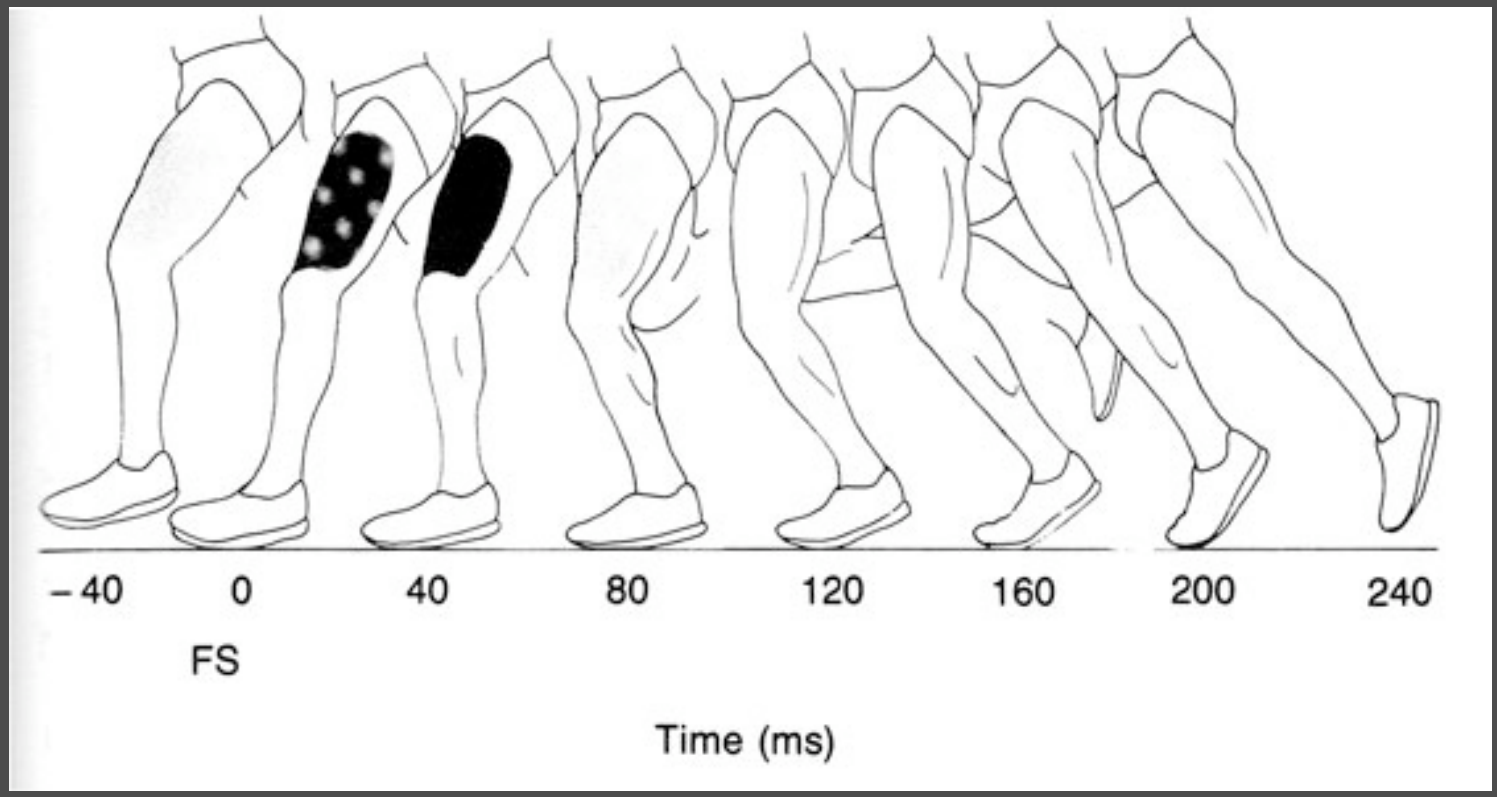
1. There is no push-off/pawback action in running:
   - Extensor's Paradox
   - Carl Lewis Running
   - If GCM is not over point of support, muscular efforts are wasted
2. Heel striking is not an option:
   - Braking Action
   - Research shows that landing on your heel puts up to 3x bodyweight on your knees and up to 7x bodyweight on the hips
3. High cadence is mandatory:
   - Running should start at 180+ spm
   - Muscle elasticity facilitates efficient, injury-free running

Extensor's Paradox



BIOMECHANICS OF DISTANCE RUNNING. Human Kinetics Books, 1990. Chapter 6. Muscle Activity in Running. The Extensor Paradox Experiment*by Irene S. McClay, Mark J. Lake, Peter R. Cavanagh*

Extensor's Paradox



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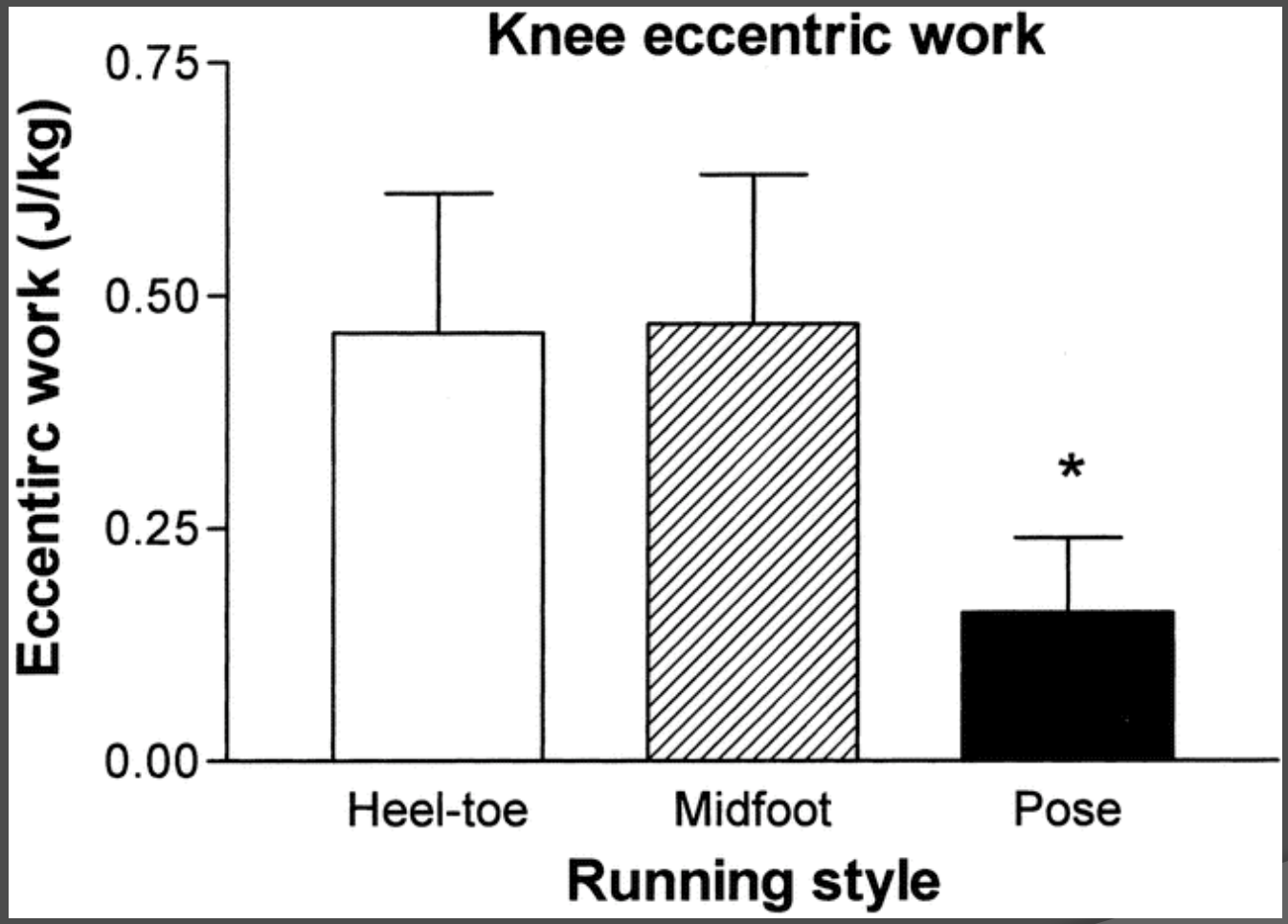
Carl Lewis Sprinting – no leg extension/no push-off

Braking Action – Carl Lewis and Tom Tellez

Eccentric Knee Loading



ARENDSE, REGAN E.[1]; NOAKES, TIMOTHY D.[1]; AZEVEDO, LIANE B.[1]; ROMANOV, NICHOLAS[1]; SCHWELLNUS, MARTIN P.[1]; FLETCHER, GRAHAM[2]

High cadence is not optional

- R. Margaria research on optimal muscle elasticity

- Jack Daniels' observation that top runner's run at a cadence of 180+ regardless of the race distance

- Other research showed that stride length causes exaggerated vertical oscillation and hence increases energy loss
    - A practical way to counteract this effect is to increase cadence and avoid active extension of the leg

Development of the Pose Method

• Throughout last century and particularly following the running boom of the 1970's, the subject of teaching running as a skill was rarely raised.

• During this time, neither the science nor coaching communities came to a commonly accepted running model that clearly explained running technique and a way to teach it.

• Running technique to date has existed in the form of opinions, facts, and descriptions – however none have been integrated into a commonly accepted model of running.

Development of the Pose Method

- Running technique has yet to be explained to a satisfactory level.
    - The biomechanics of running has mostly been a pedantic observation of what happens in running, as opposed to an explanation of why we must perform certain actions in running.

- Generally, the coaching community view has been summarized in the words of Ken Doherty: "A sound rule of thumb when it comes to running technique is to leave it alone."
    - This point of view would be acceptable if it weren't for the excessive numbers of running injuries annually.

- Even simple, superficial observation of the difference between elite and age group athletes allows us to see that most people need to learn how to run properly.

Pose Method of Running

• Pose Running Model is a running standard developed with a methodical set of drills and exercises designed specifically to facilitate the precise execution of the Pose Technique.

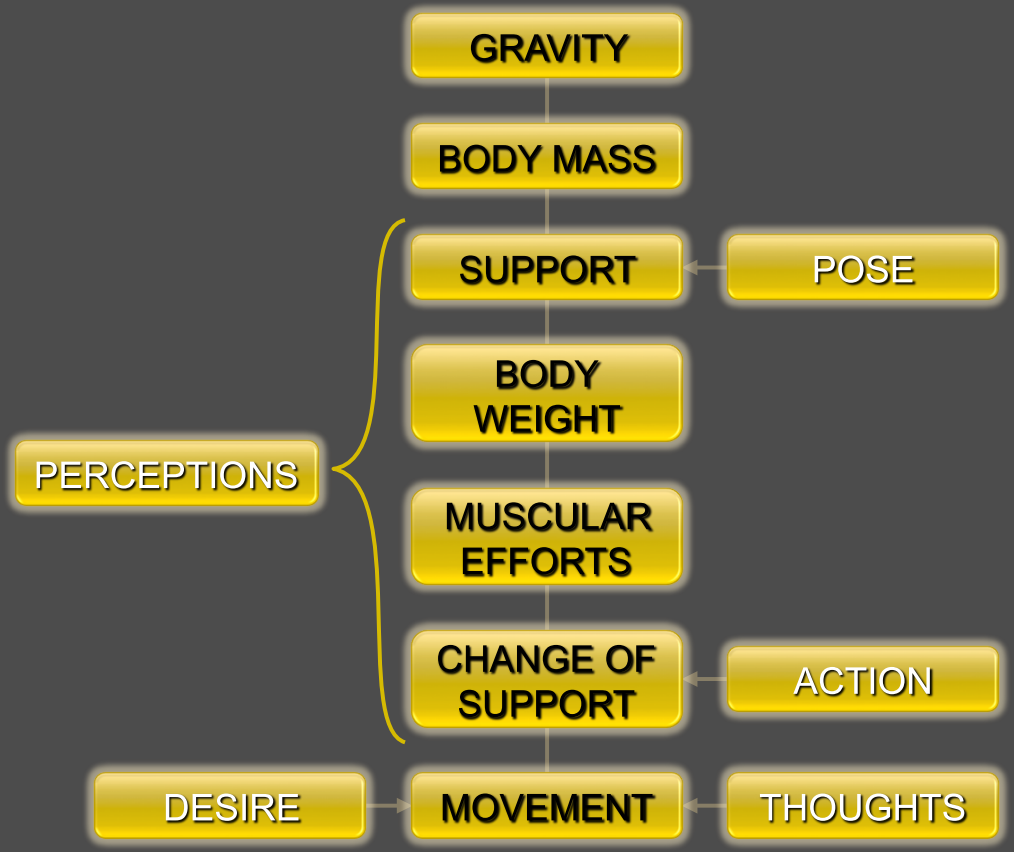
• Pose Running Technique is used to describe the skill of performing the Pose Running model.

• The Pose Method of Running is a system developed to teach the Pose Running Model to others.

The Running Pose – Said Aouita

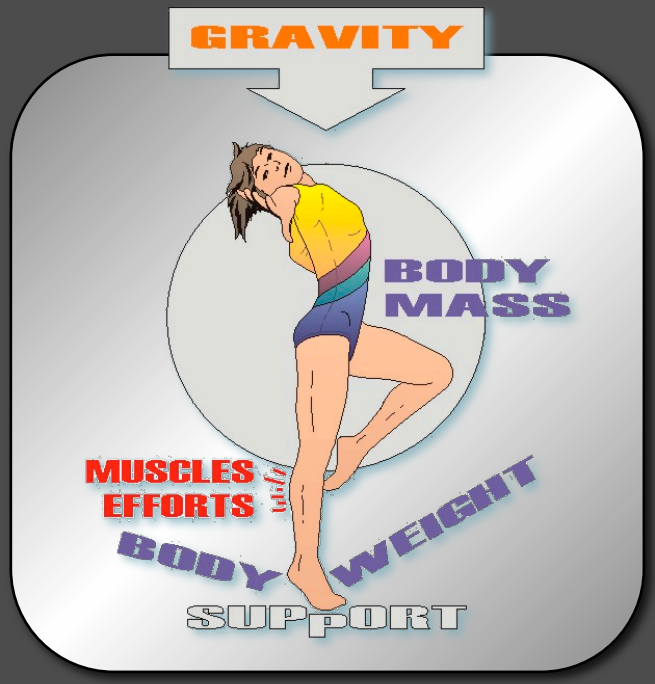
The most effective way to teach proper technique to athletes is through a series a poses which breakdown the desired complex movement into specific segments that can be worked on and perfected separately during training.

Fundamentals of the Pose Method

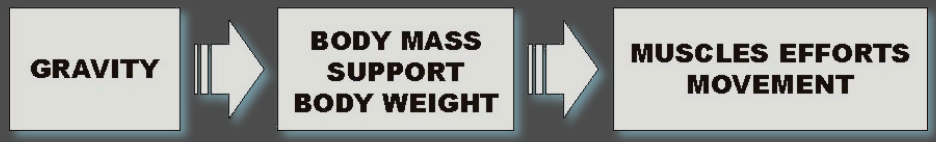


1) We live and move in a field of Gravity.
2) Gravity is manifested in us through our Body Weight.
3) Body Weight is a governing force in movement.
4) Muscular activity is directed to serve the Body Weight. Muscles are “attached” to our Body Weight, not to the bones.
5) Any movement is series of Poses.

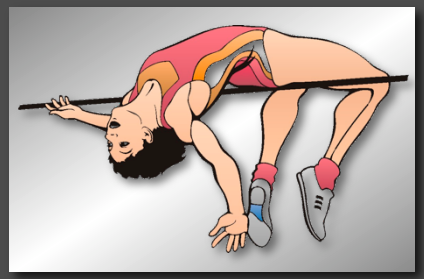
Essence of Body Weight

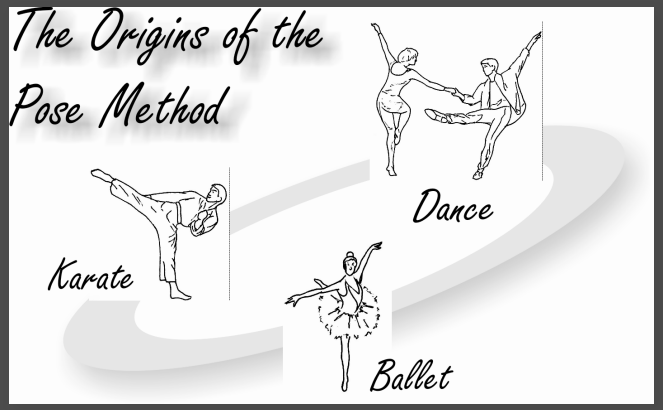


- Body Weight is the force.
- Body Weight is manifestation of Gravity.
- Body Weight appears in the point of support.
- Body Weight perception is the pressure in the point of support.



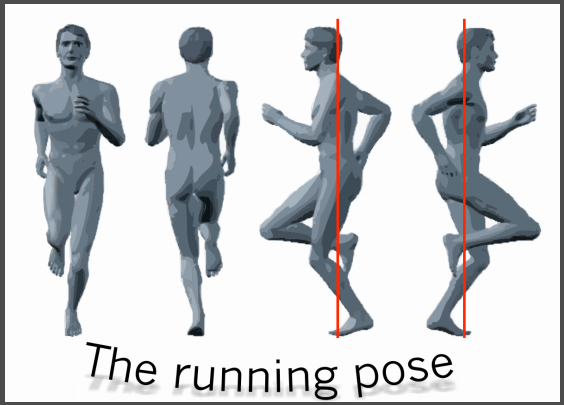
Poses in movement





Intuitive Kenyan Runners

Pose Running Model

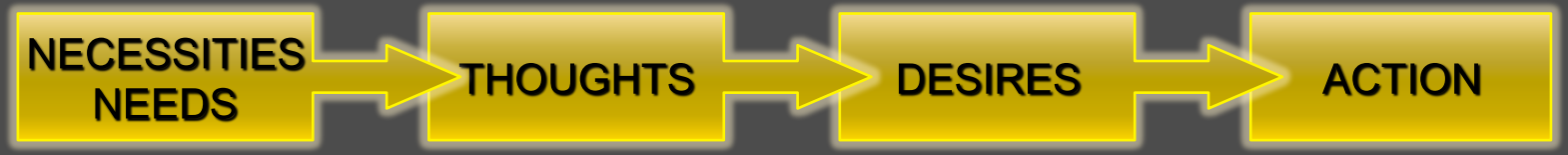


• In running only one Pose determines the efficiency of the whole movement, which we call the "Running Pose".
• The Running Pose is the body position on support with an S (spring)-like shape.

- The Running Pose vertically aligns the shoulders, hips and the GCM over support on the front part of the foot (the ball of the foot).
- The Running Pose is designed to allow the athlete to maximize the use of external forces of gravity and muscle elasticity, and minimize the use of energy for ATP breakdown during voluntary muscle contraction.

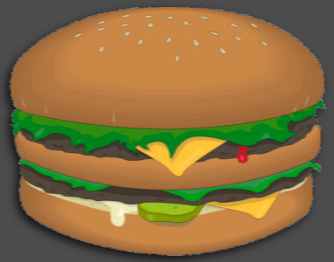
The Pose Model

Movement begins from our necessities and needs leading to our thoughts, desires, and actions.



Aristotle. Selections. De Anima. Book III Chapter 4. [Desire and Action].

Needs and Necessities



Our needs vs.
our necessities

Thoughts, Desires, Perceptions and Actions

- What do we have to think of?
- How should we think?
- What kind of desires do we have to follow?
- What kind of perceptions are we developing and for which purpose?
- What kind of action do we need to perform in order to run perfectly?

Desire & Perception

“Man’s desires are limited by his perceptions; none can desire what he has not perceived.”

- William Blake

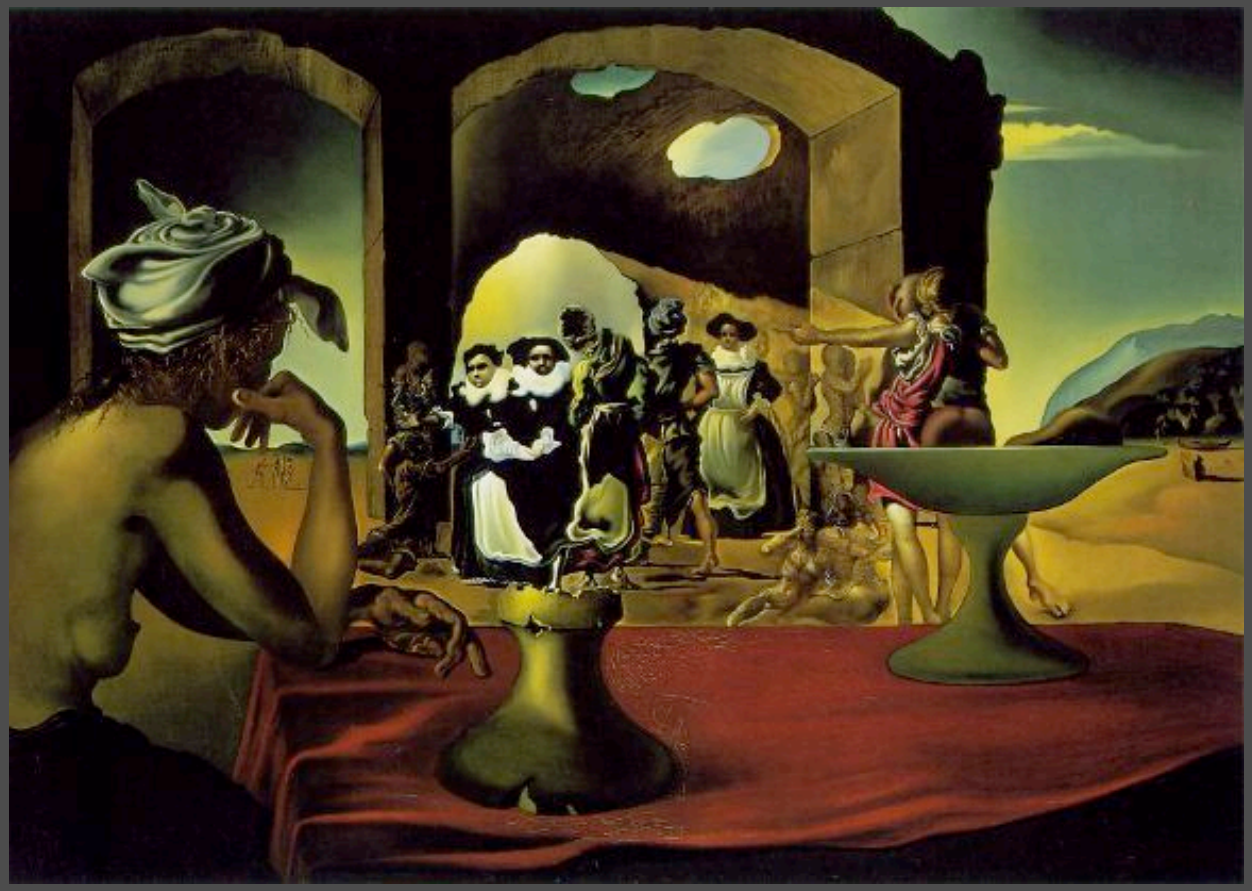
“Perception – is something more than just the source of knowledge, it’s a tool (means) of controlling (governing) action.”

- Edward Reed

Perception, which is longer?

What do you see?

Salvador Dalí



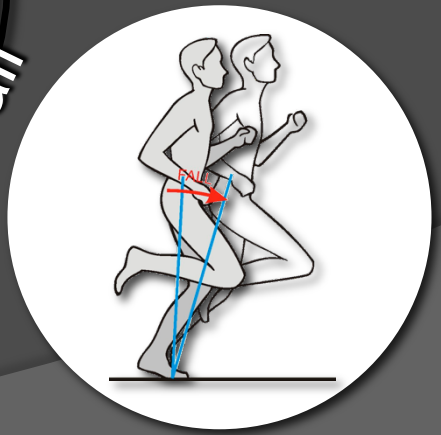
Pose Running Formula

Pose

PFP

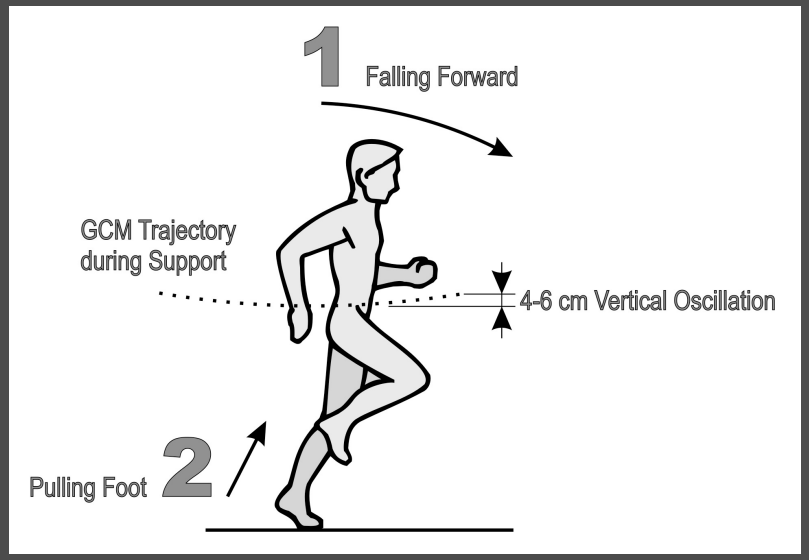
Pull

Fall



Running technique

- Running technique = change of support.
- Change of support consists of two main elements:
    1. Destruction of balance (top figure).
    2. Breaking contact with the ground.



- Breaking contact with the support is carried out by pulling the foot up from the ground by hamstring muscles.
- Running is falling forward (leaning forward) with simultaneous pulling of the support foot up from the ground (bottom figure).

Gravity in movement

"Motion is created by the destruction of balance, that is, of equality of weight, for nothing can move by itself, which does not leave its state of balance, and that thing moves most rapidly, which is furthest from its balance. …of the motion and course of animals. That figure will appear swiftest in its course, which is about to fall forward."

"Therefore a man will always present more of his weight towards that point to which he desires to move than to any other place. The faster a man runs the more he leans towards the place to which he runs and gives more of his weight in front of axis of balance than behind."

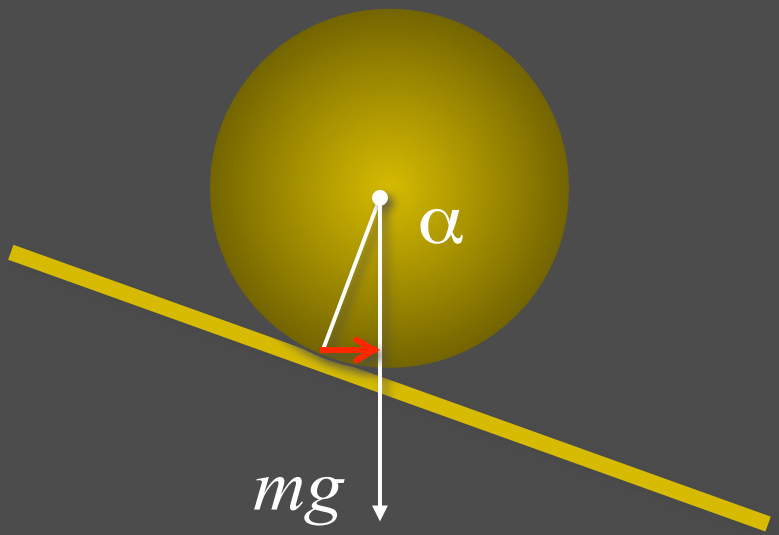
- Leonardo da Vinci

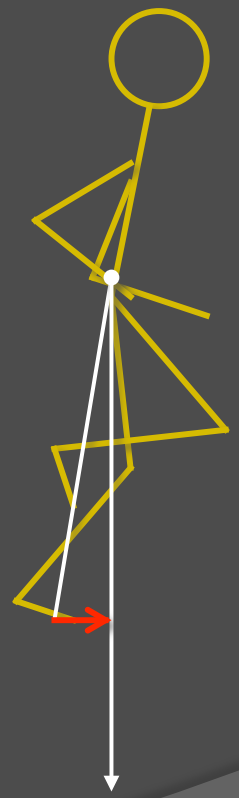
"It seems to me that the act of progression itself – whether it be by flight through the air or by such movements as running over surface of the ground-consists essentially in a movement in which the center of gravity of the body is allowed to fall forwards and downwards under the action of gravity, and in which the momentum thus gained is used in forwards; so that from one point in the cycle to the corresponding point in the next, no work is done (theoretically), but the mass of the individual is, in effect, moved horizontally through the environment".

- Graham Brown, 1912

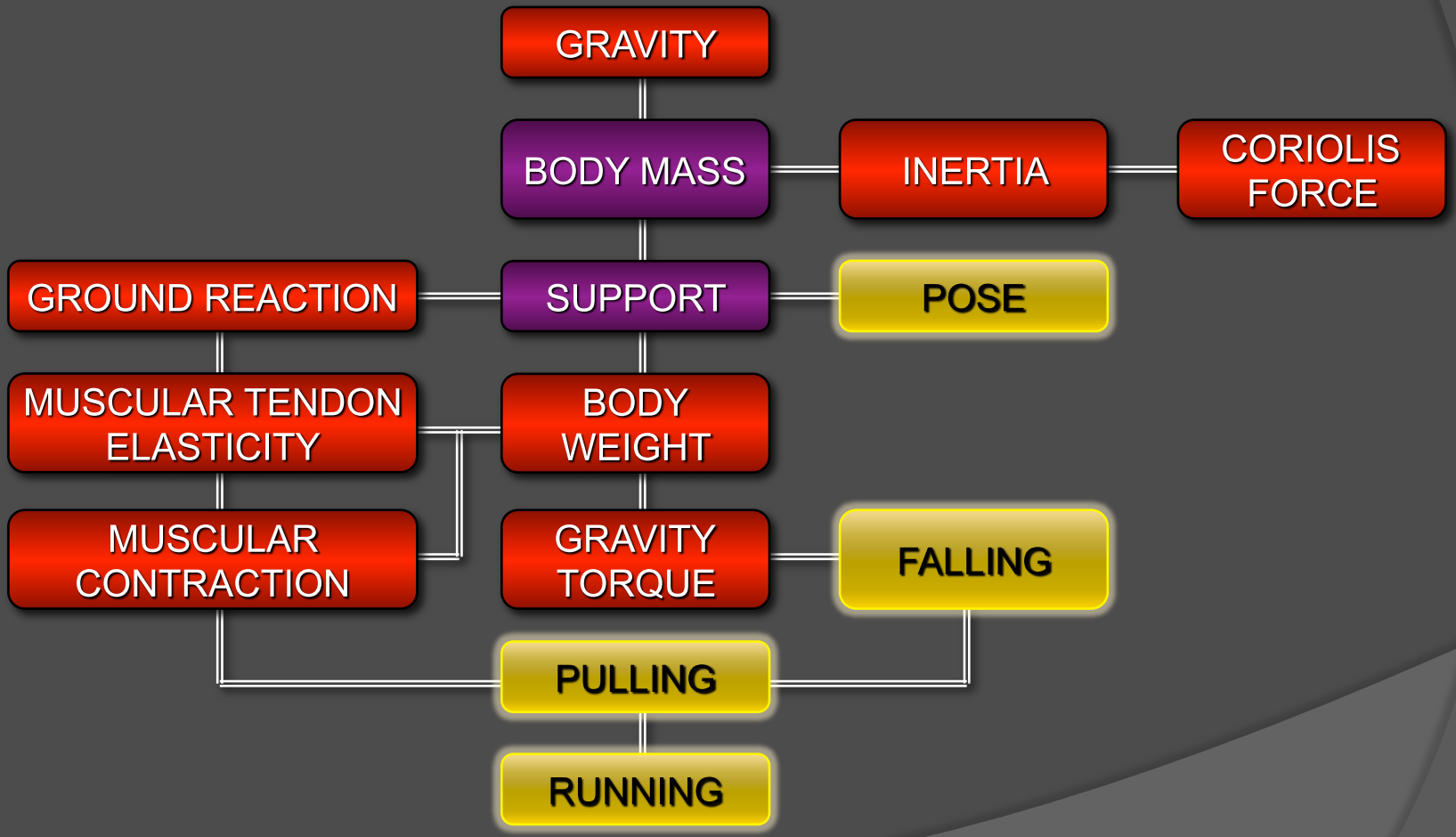
Gravitational Torque

$$F = mg \times \sin \alpha$$

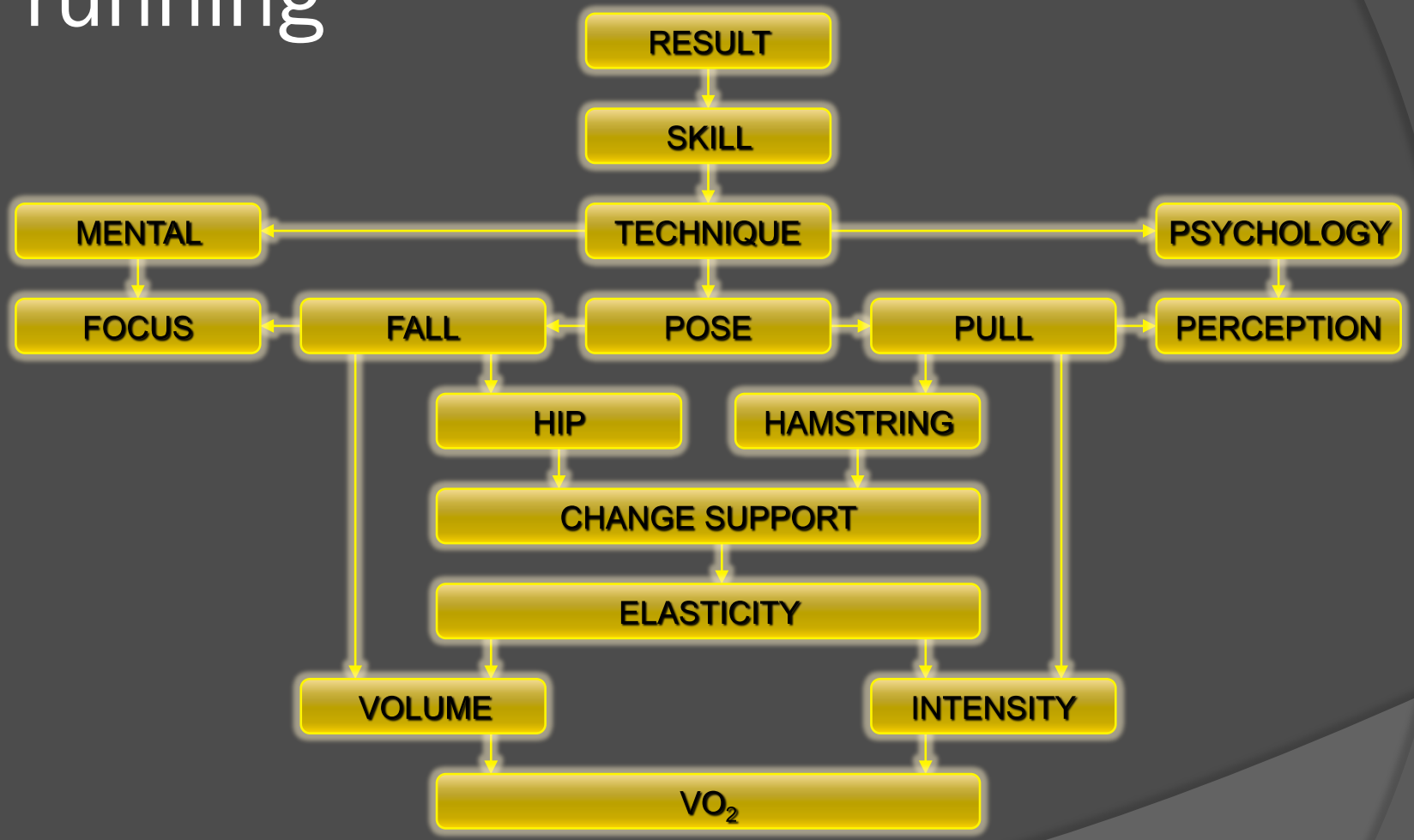




Forces in running: the Pose Method transformational model



Hierarchical model of training in running



Laws of injuries

Law I: Injuries are not an act of God.

- Tim Noakes

Pain: the penalty of violating the principle of nature

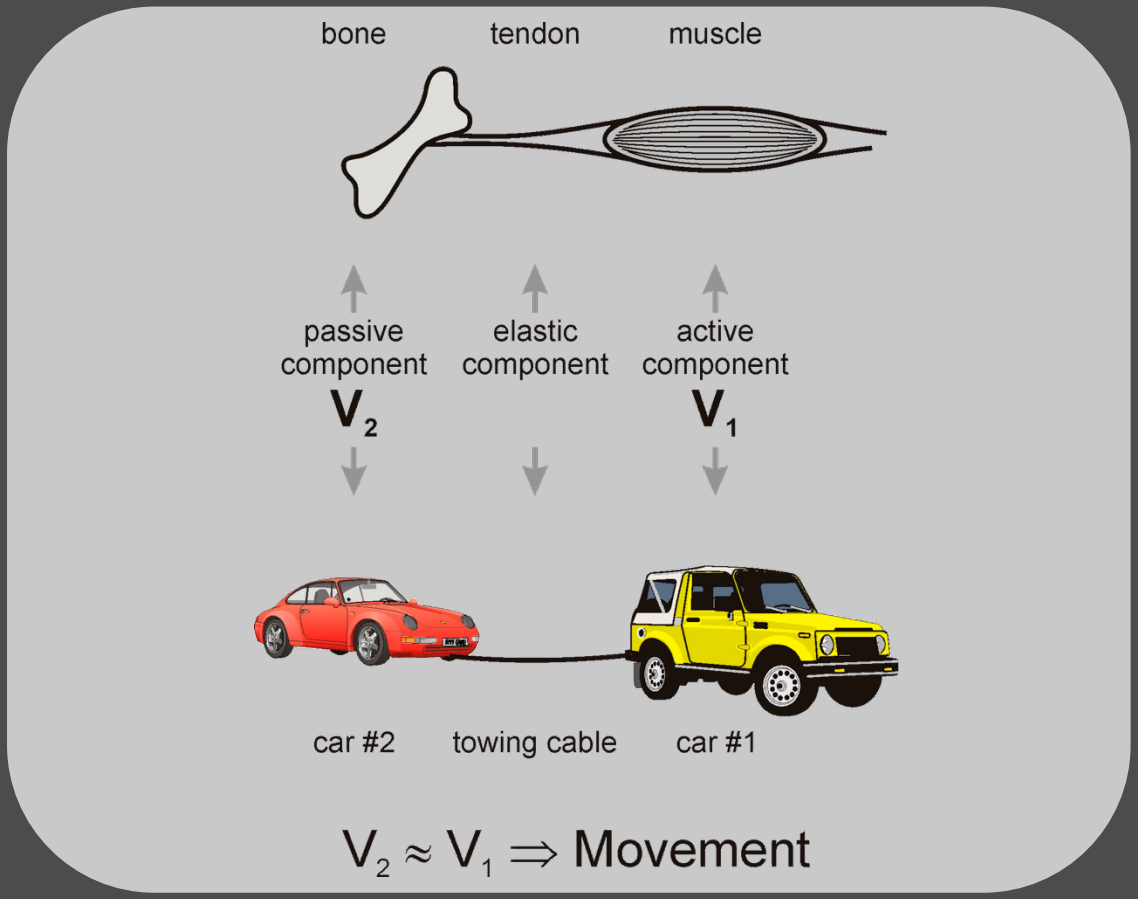
- Chuang Tzn

The Pose concept of injury prevention and healing

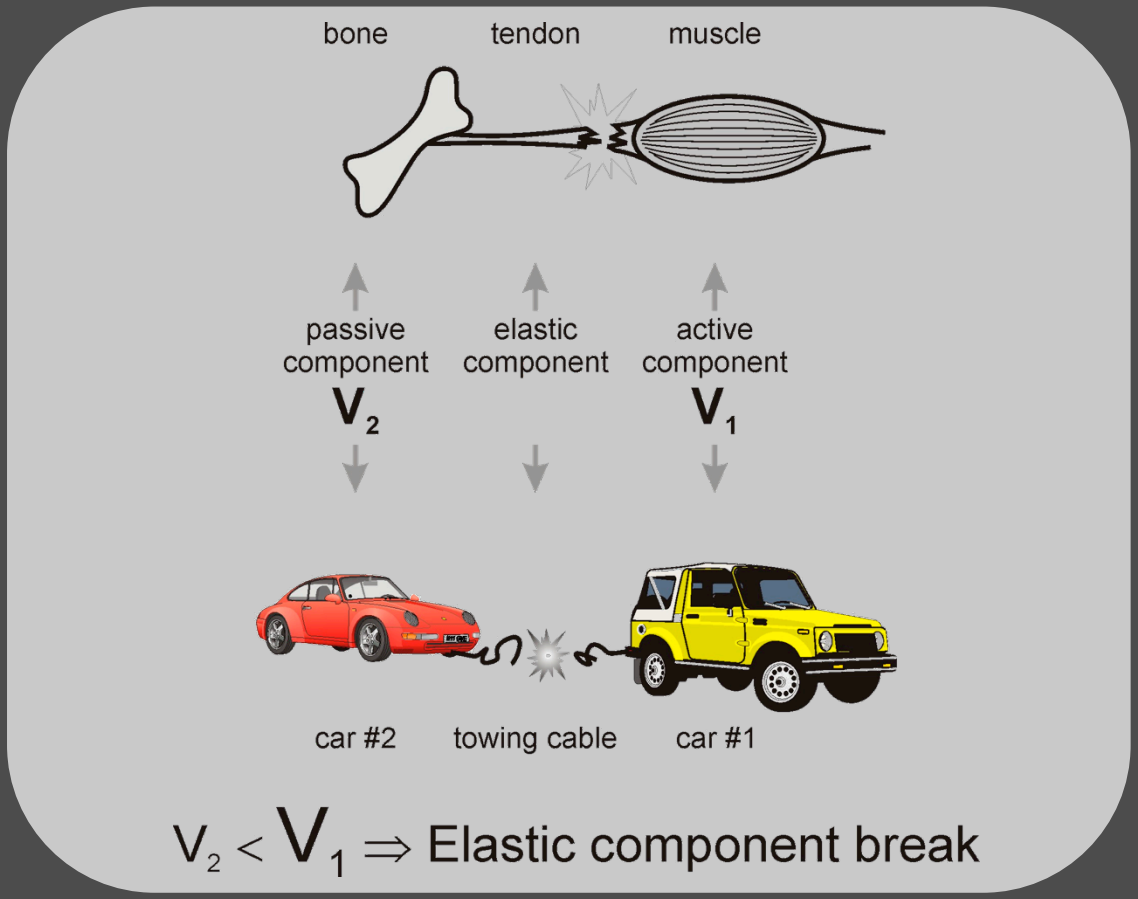
"Nature doesn't adjust to our level of skill."

- Laurence Gonzalez

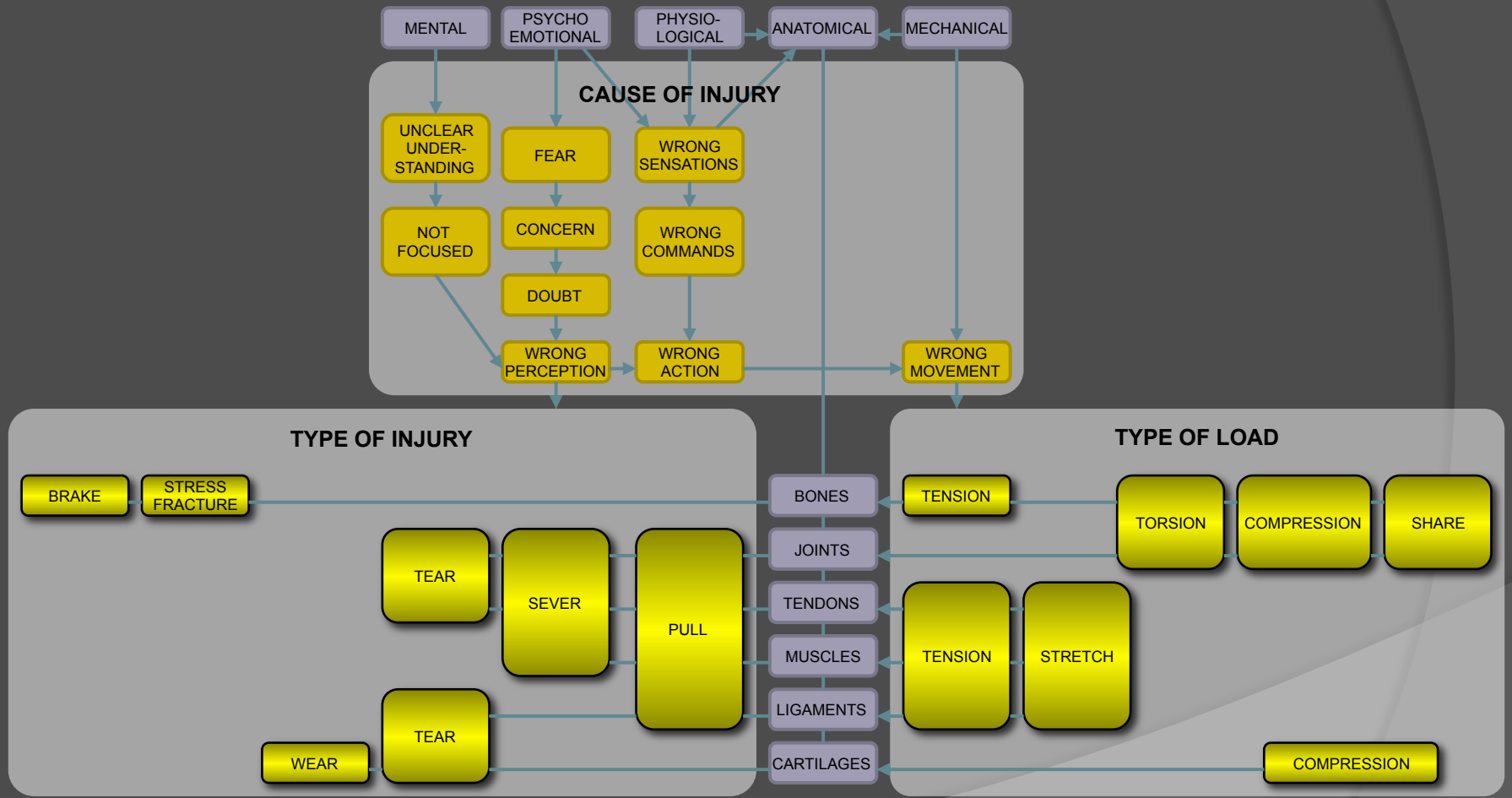
Injury


bone
tendon
muscle
passive component
V_2
elastic component
active component
V_1
car #2
towing cable
car #1
$V_2 \approx V_1 \Rightarrow$ Movement

Injury


bone
tendon
muscle
passive component
V_2
elastic component
active component
V_1
car #2
towing cable
car #1
$V_2 < V_1 \Rightarrow$ Elastic component break

The Pose concept of injury prevention and healing



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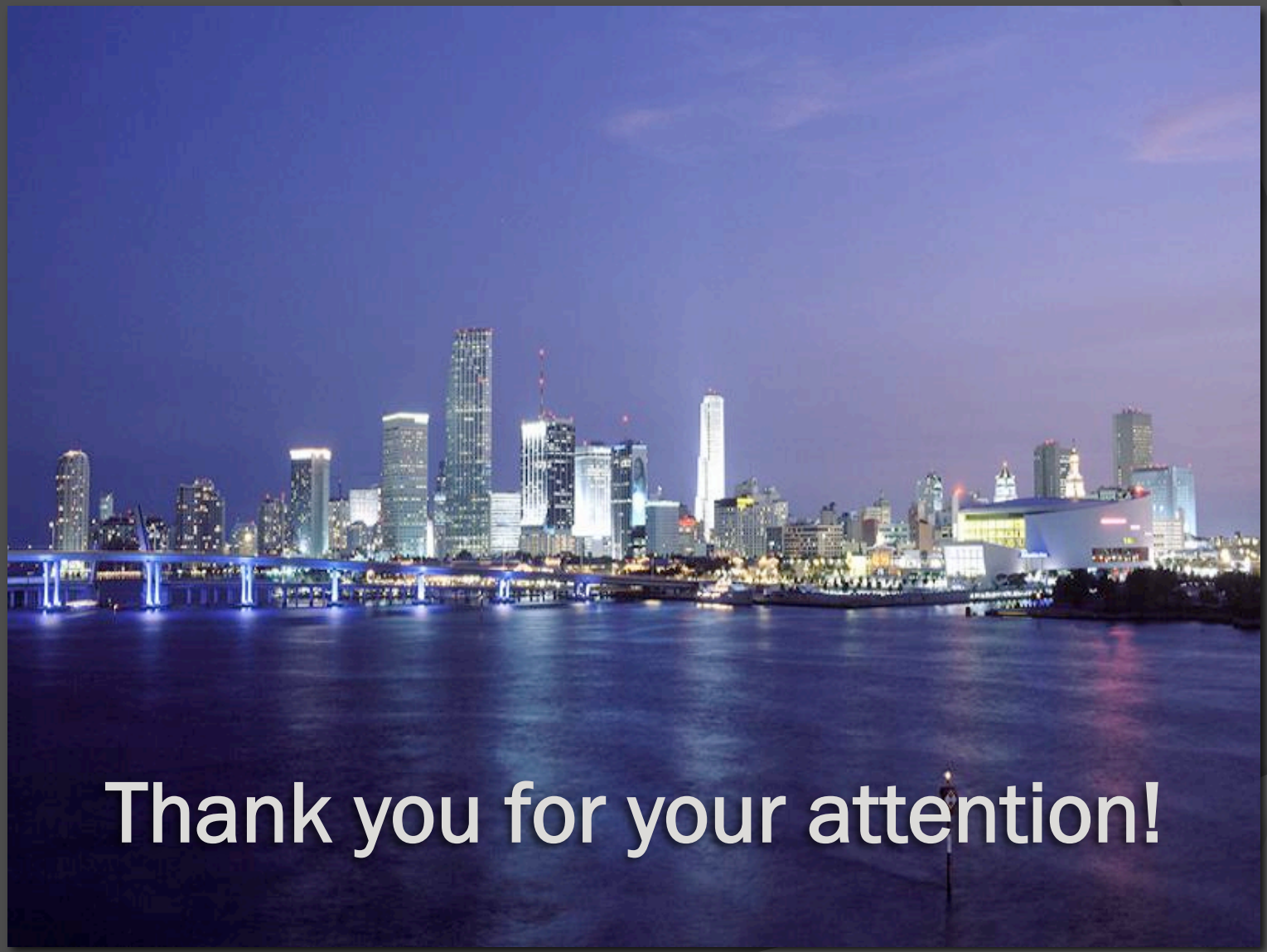
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