

# Strength & Conditioning Packet

## Unit 2- Corrective, Flexibility & Core Training

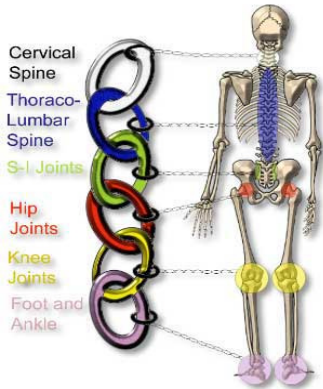


Unit Map  
Lesson Diagrams  
Core Basics & Musculature  
Core Stabilization  
Core Strength / Power  
Flexibility & Corrective Training

# Strength & Conditioning Packet

## Unit 2- Corrective, Flexibility & Core Training

### THE KINETIC CHAIN



Over the course of this unit we will be learning about Core, Flexibility and Corrective training techniques and how improving these areas can benefit our overall fitness levels.

### **Directions for completing packet:**

Packets will be distributed at the beginning of each unit and are due upon the completion of the unit. The three worksheets at the back of the packet are due\_\_\_\_\_.

**NO late work will be accepted.** All work turned in after the due date will result in a **zero**.

### **Worksheets Due:**

1. Core and flexibility training quiz (Use packet- 10 questions)
2. Crossword (Use Vocab List)
3. Create & Explain

**\*\*\*\*Make sure your NAME is on EVERY page.\*\*\*\***

# Strength & Conditioning:

## Unit – 2 (Core & Flexibility Training)

### Unit Essential Question(s):

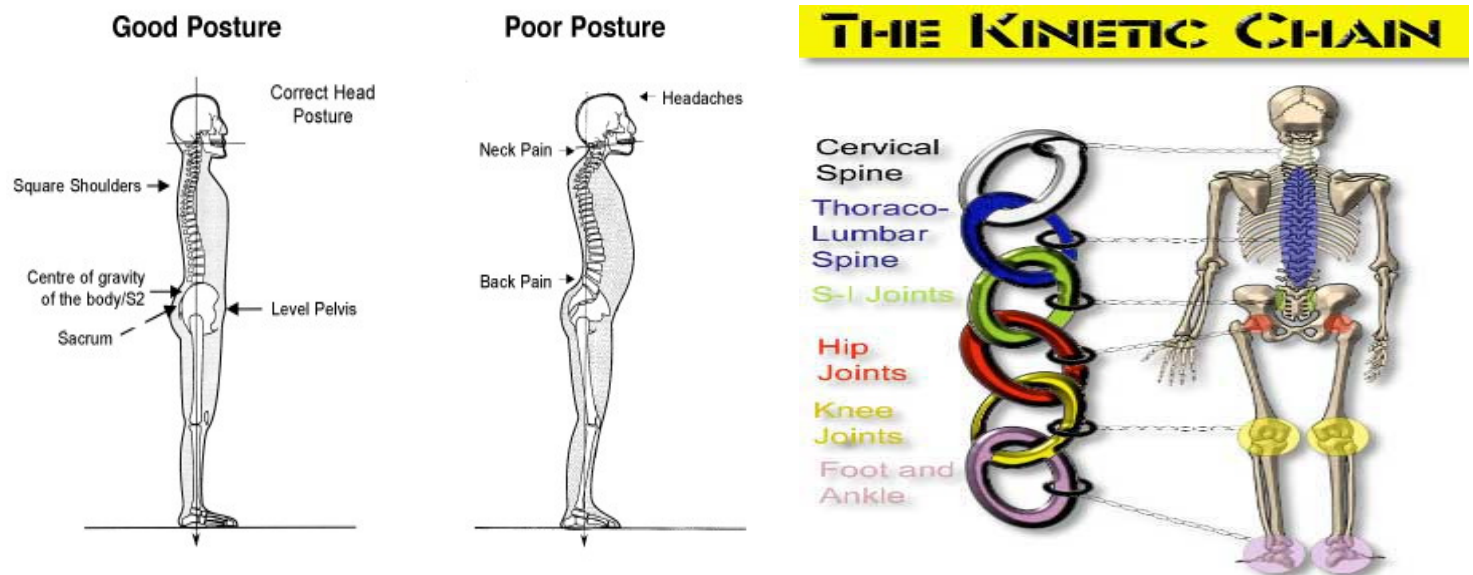
How can improving and maintaining my alignment, flexibility and core benefit my overall fitness levels?

### Vocabulary:

Kinetic Chain, Dynamic, Static, SMR, Medicine Balls, Core, Balance, Plank, Local, Global, Toe Touch, Corrective Training, Core Training, Flexibility Training, 29, sit-ups, Walking Lunges, Walking Knee Hugs, Foam Roller, Leg Swings.

### Corrective Training & Kinetic Chain

**Kinetic Chain** – is made up of the soft tissue system (muscle, ligament, tendon and fascia), neural system and Skeletal system it operates as an integrated functional unit. A dysfunction in any component of the Kinetic Chain leads to compensations and adaptations throughout the body. For example, if one segment in the Kinetic Chain is out of alignment, other movement segments have to compensate in attempts to balance the weight distribution of the dysfunctional segment. If an athlete is allowed to exercise without proper postural alignment, that athlete may develop muscle imbalances and joint dysfunctions that can lead to injury. A lack of joint stabilization predisposes an individual to functional instability. After Grade I and II ankle sprains, balance problems will normally begin to occur. So corrective training will be needed to fix the issues within the kinetic chain.



### Benefits of Corrective Training

Corrective Training is designed to correct muscle imbalances, joint dysfunctions, neuromuscular deficits and postural distortion patterns. Teaching proper static and dynamic postural alignment during functional activities can prevent most postural dysfunctions. Keep in mind that to prevent tissue overload, individuals should not perform dynamic integrated movements (Olympic lifting) prior to improving the structural integrity.

## Types of Flexibility Training

**Static Stretching** - In this process, you take a muscle to the first point of tension and **hold** the stretch for a minimum of 20 seconds. This causes the muscle to relax and provides for better el



**Dynamic Stretching** - uses the force production of the muscle along with the body's momentum to take a joint through the full range of motion. (Active Stretching)



Leg Swings



Lunge & Twist



Walking Knee Hugs



Side-to-Side Lunges

**Self Myo-facial Release Stretching – (SMR)** is the process of utilizing bio-form rollers and/or “The Stick” to improve soft tissue thus improving flexibility. (Active Stretching)



## Benefits of Flexibility Training

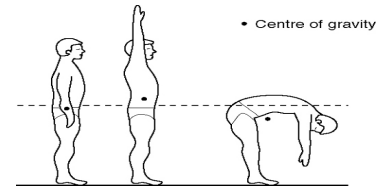
- Decreased chance of injury and enhance strength, flexibility, speed and power
- Prevent the development of muscle imbalances
- Correct existing muscle imbalances, joint dysfunction and improving posture
- Flexibility must be established in all three planes of motion to ensure optimum tissue extensibility during functional movements.





## What is the CORE & what does it do for me?

- Core training has become an industry-wide buzz word referring to the training of the midsection, or the trunk, of the body.
- The core operates to reduce force, dynamically stabilize and produce force, against abnormal forces. (Done by distributing weight and absorbing and transferring ground reaction forces)
- The core is where the human body's center of gravity is located and where all movement begins. The core also maintains postural alignment and dynamic postural equilibrium during functional activities.



## What happens if my CORE is weak?

- If the extremity muscles are strong and the core is weak, there will not be enough force created to produce efficient movements.
- Research also demonstrates decreased stabilization endurance in individuals with chronic low back pain. Research also demonstrates that approximately 75-90% of all individuals suffer from recurrent episodes of back pain.
- People spend very little time dedicated to balance training, core stabilization training and eccentric training in all three planes of motion (sagittal, frontal and transverse).
- A weak core is a fundamental problem inherent to inefficient movement that leads to predictable patterns of injury



## Why is Core – Balance important and what are some benefits of a strong core?

- Balance is a component of all movement whether strength, speed, skill or flexibility.
- Balance makes it possible for the body to maintain its center of gravity over its base of support
- Sprinting requires losing and regaining your balance on one leg in less than 1/10th of a second.
- Daily activities such as walking, stair climbing, reaching and throwing require static foot placement with controlled balance shifts.
- The ability to reduce force at the right joint, at the right time, in the right plane of motion and the right direction requires optimum levels of functional dynamic balance and neuromuscular efficiency.
- A strong / stable core enables you to train with heavier loads, which increases gains in the rest of their body.
- Balance Activities with and without visual input will enhance motor function at the brainstem level.
- The goal of core training is to develop optimal levels of functional strength and dynamic stabilization while improving dynamic postural control, and to ensure appropriate muscular balance and joint arthrokinematics.
- Performing balance training as part of an overall injury prevention program may lead to injury reduction in sports.



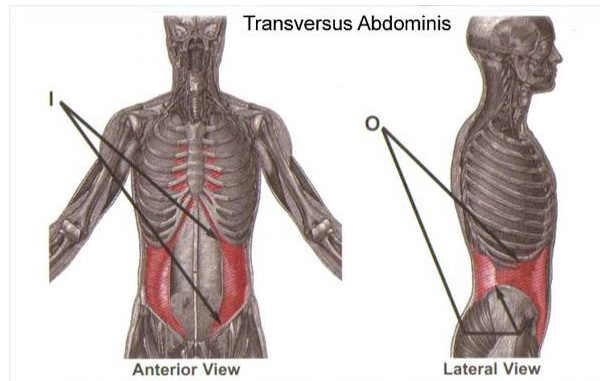
## Musculature of Core

29 Muscles make up the Core Musculature (Broken up into Local & Global systems)

### The Local System (Stabilization Musculature)

Muscles: Transverse Abdominus, Internal Obliques, Multifidi, and Lumbar Transversospinlis

Lumbar  
Transversospinlis



Internal  
Obliques



Purpose: This system is involved in stabilizing/supporting joint movement and is not movement specific.

### The Global System (Movement Musculature)

Muscles: Rectus Abdominus, External Obliques, Erector Spinae, Quadratus Lumborum, Adductor Complex, Quadriceps, Hamstrings, and Gluteus Maximus

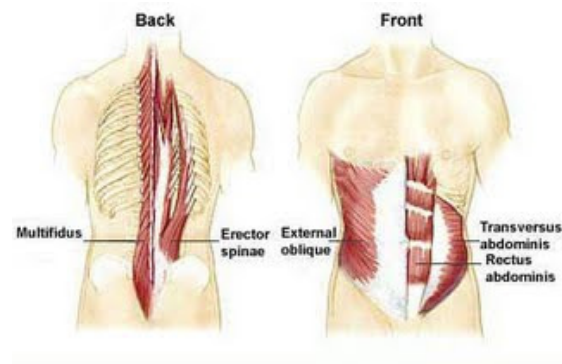
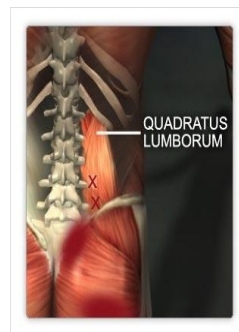
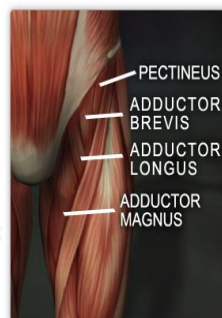
Gluteus  
Maximus



Quadriceps



Hamstring



Purpose: These muscles are associated with movement of the trunk, equalize external loads placed on the body, and transfer and absorb forces from the upper and lower extremities to the pelvis.

## Core Training Programs

There are three parts to a core training program:

### **Stability, Strength, & Power**



#### Core Stability –

Purpose: (Local System) to improve stabilization, balance, and postural control

Training Rational: 1-4 Exercises, 1-3 Sets, Tempo 3-10 seconds

Examples:



Side Plank



Plank



Supermans



SL MB Twist



SL Balance on  
BOSU Ball

#### Core Strength -

Purpose: (Local-Global System) to build strength in the core by using dynamic. Concentric and eccentric movements

Training Rational: 1-4 Exercises, 2-4 Sets, 8-12 Reps, Tempo - 2 second hold pace

Examples:



Ball Back Extension



Ball Crunches



Toe Touches



Floor Sit-up



Ab Twist

#### Core Power-

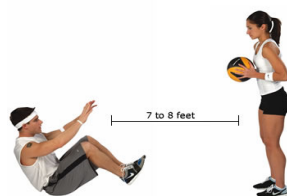
Purpose: (Global System) to build explosive power, improve sport specific movements and improve core coordination.

Training Rational: 1-2 Exercises, 2-4 Sets, Tempo – Fast

Examples:



MB Slams



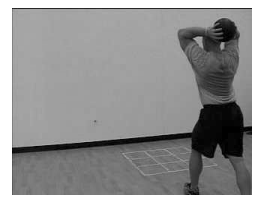
MB Crunch and Toss



MB Ball Pullover & Toss



MB Twist & Toss



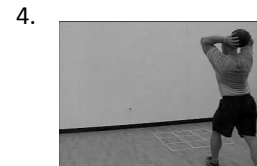
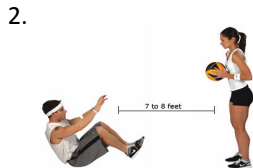
MB OH Soccer Throw



# Core/Flexibility Training Quiz



Fill in the correct phase that matches the exercise shown. (Stabilization- Strength-Power)



\_\_\_\_\_

Circle the correct response to the question. (Multiple Choice)

5. How many muscles make up the core?

- A. 50
- B. 29
- C. 38
- D. 15

6. You hold dynamic stretches for 10-20 seconds.

- A True
- B. False

7. The strongest correlation with core weakness is \_\_\_\_\_?

- A. Lower Back Pain
- B. Headaches
- C. Belly Fat
- D. Foot Pain

8. Static stretches are moving stretches.

- A. True
- B. False

9. The core is where the body's center of gravity is located.

- A. True
- B. False

10. List some reasons why core training and good flexibility is important to your overall health and wellness?

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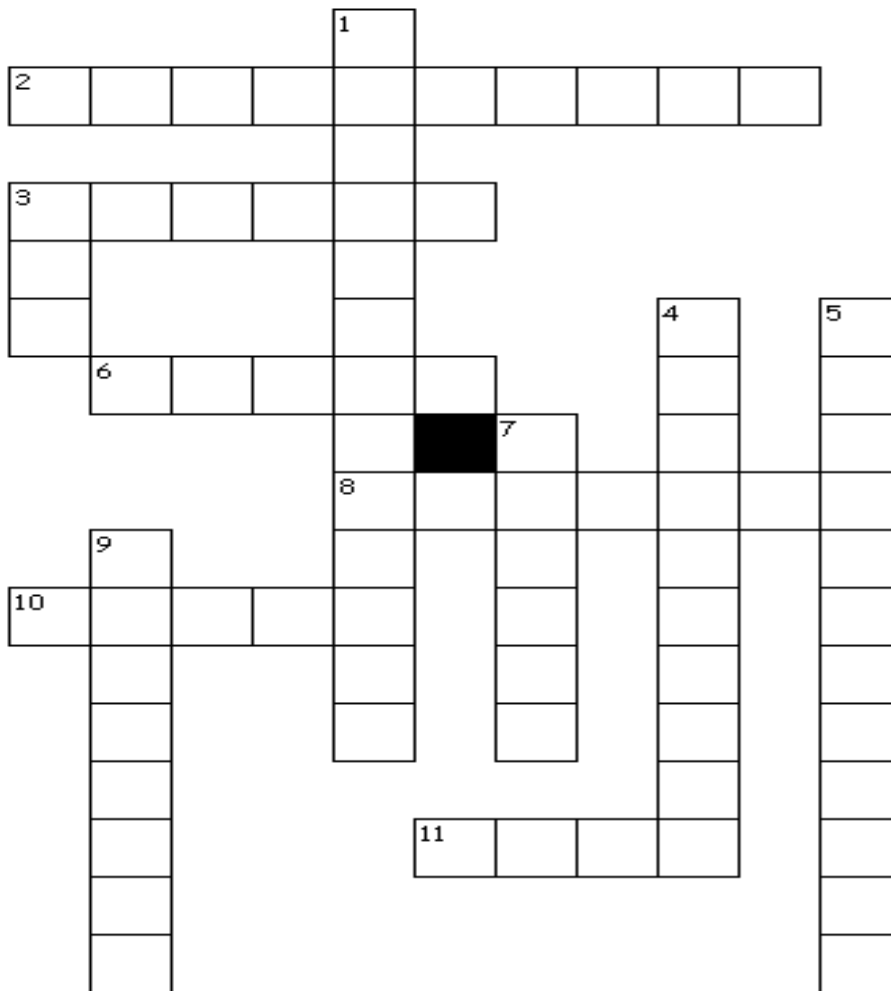


It's your turn to be the trainer. Answer the following question and remember to include the warm up, flexibility, and the exercises.

**Create and Explain your own 30 minute core workout:**

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# Flexibility and Core Training Review



## Across

2. Training is designed to correct muscle imbalances, joint dysfunctions, neuromuscular deficits and postural distortion patterns.
3. holding the stretch for a minimum of 20 seconds is called what type of stretching.
6. is an example of a core stability exercise.
8. is a component of all movement whether strength, speed, skill or flexibility.
10. This system is involved in stabilizing or supporting joint movement and is not necessarily movement specific.
11. is where the human body's center of gravity is located and where all movement begins.

## Down

1. can be thrown to improve core power
3. stretching that utilizing bio-form rollers and/or "The Stick" to improve flexibility.
4. Number Muscles make up the Core Musculature
5. A dysfunction in any component of this leads to compensations and adaptations throughout the body.
7. this system has muscles are associated with movement of the trunk, equalize external loads placed on the body, and transfer and absorb forces from the upper and lower extremities to the pelvis.
9. is an example of core strength exercise.