

## MEDICAL EDUCATION PROGRAMME FOR BOXERS AND COACHES

# KNOW YOUR CORE

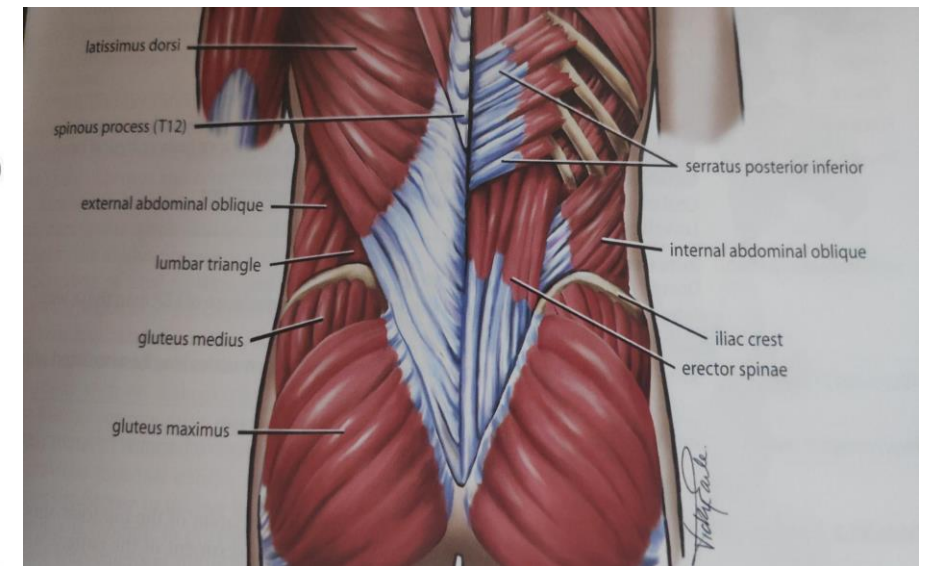
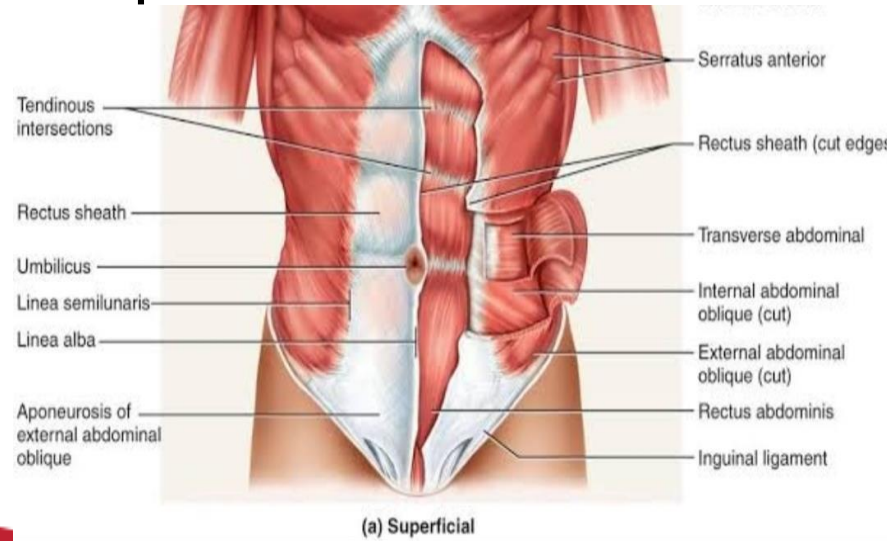


Presentation by:  
**Gaurav Ahluwalia**  
Sports Physiotherapist  
Elite Men Boxing Team  
S.A.I., N.S.N.I.S.,  
**PATIALA**

# DEFINITION OF CORE AND IT'S IMPORTANCE IN SPORTS

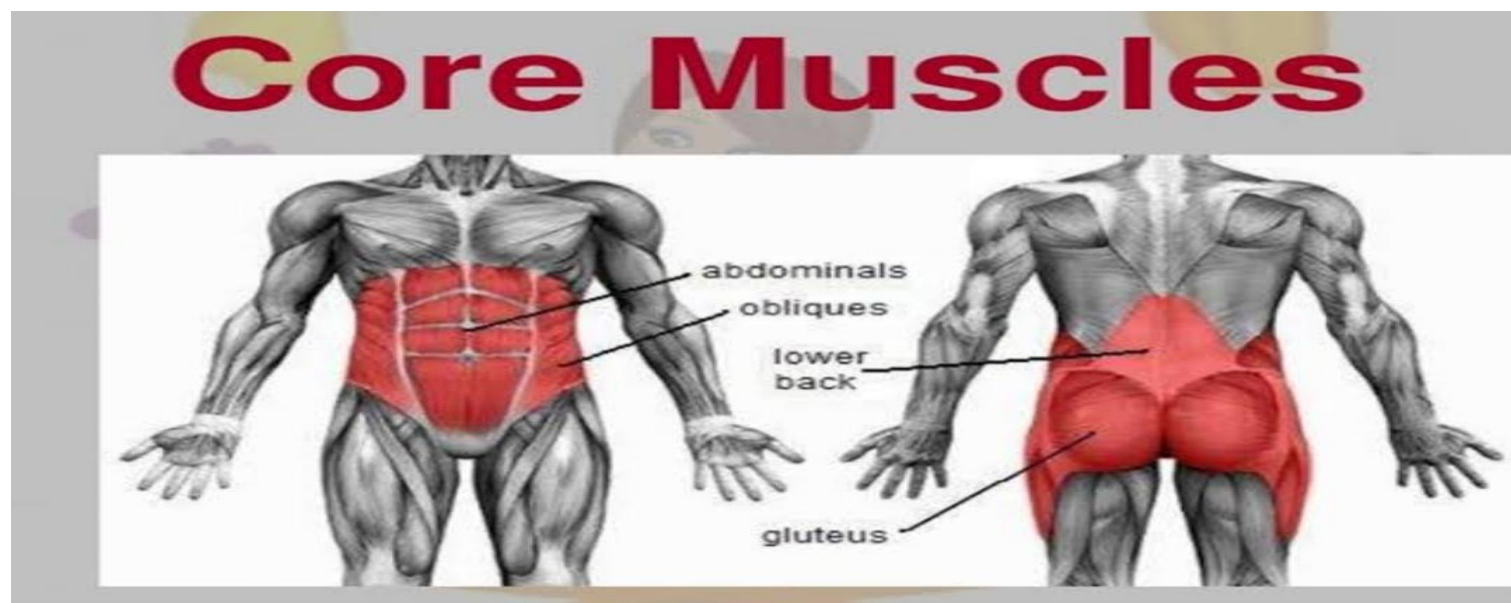
**DEFINITION: CORE** IS THE **CENTRAL**, INNERMOST ESSENTIAL PART OF ANYTHING.

**IN HUMAN BODY:** IT COMPRISES OF THE **LUMBO PELVIC HIP** **COMPLEX**. Around 29-35 different muscle groups connecting into the pelvis from the spine and hip area.



# CORE IS DESCRIBED LIKE A BOX

- ABDOMINALS IN THE FRONT
- PARASPINALS, GLUTEALS IN THE BACK
- DIAPHRAGM AS THE ROOF
- PELVIC FLOOR, HIP GIRDLE AS THE BOTTOM



# MAJOR CORE MUSCLES

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- **BACK MUSCLES:**Thoracolumbar fascia(TLF)Quadratus Lumborum,Multifidus, Erector Spinae etc.
- **ABDOMINALS:**Rectus Abdominis,Transverse Abdominis,Obliques etc.
- **HIP:**Gluteals,Ilio-Psoas group etc.

## IMPORTANCE OF A STRONG CORE IN BOXING

- The core is the centre of gravity and where all movements begin.
- It is the POWER-HOUSE that provides centre of stability in order to generate and transfer energy from the centre of the body to its extremities.
- It helps to perform complex athletic movements that require coordination, balance, and technical skills.
- Improves body control and balance ,upright posture.
- Act as shock absorbers as core stability is often needed in rotational movements ,which is required in almost every sports including BOXING.
- Reduces risk of injuries by stabilizing other weak areas.
- Thus, creating a SOLID BASE FOR ENHANCING PERFORMANCE.

# CORE ASSESSMENT

- The **main objective** of core assessment is to **monitor** the development and improvement of the boxer's **core stability** over a period of time.
- There are quite a number of tests to assess core strength and stability but generally 4-5 tests are sufficient to start the assessment.
- We need an exercise mat and a stop watch to monitor the time and proper warm up and cool down should be done before starting and finishing the test or core training.
- Some of them are as follows:
- **1.THE CRUNCH TEST/ PARTIAL CURL-UP TEST:** Used to assess the RECTUS ABDOMINIS muscle.
- **Execution:** In crook lying position, engage the abs to lift head, neck, shoulder blades off the floor. Return to starting position to complete 1 rep. Repeat the same for 1 minute and note the no. of rep.



# crunch test cont..

**Scoring:** Here are the age-adjusted standards based on guidelines published by the American College of Sports Medicine (ACSM):

## Ratings for Men, Based on Age

Rating	< 35 years	35-44 years	> 45 years
Excellent	60	50	40
Good	45	40	25
Marginal	30	25	15
Needs Work	15	10	5

## Ratings for Women, Based on Age

Rating	< 35 years	35-44 years	> 45 years
Excellent	50	40	30
Good	40	25	15
Marginal	25	15	10
Needs Work	10	6	4

# core assessment....

**2.THE PRONE BRIDGE TEST /FRONT PLANK:** This test is used to assess the anterior and posterior core muscles.

**Execution:** Patient support themselves on the forearms, with pelvis in the neutral position and the body straight. Failure occurs when the athlete loses neutral pelvis and falls into a lordotic position with anterior rotation of the pelvis.



Rating	Time
Excellent	> 6 minutes
Very Good	4-6 minutes
above average	2-4 minutes
Average	1-2 minutes
below average	30-60 seconds
poor	15-30 seconds
very poor	< 15 seconds



## cont...

- **3. THE LATERAL BRIDGE/SIDE PLANK TEST:** Used to assess the lateral side core muscles like Q.L., Multifidus and Internal n External oblique muscles.
- **Execution:** In side lying position, legs are extended and the top foot is placed in front of the lower foot for support. Athlete support themselves on one elbow and on their feet while lifting their hips off the floor to create a straight line over their body length. Failure occurs when athlete loses the straight posture and hips fall towards the floor.

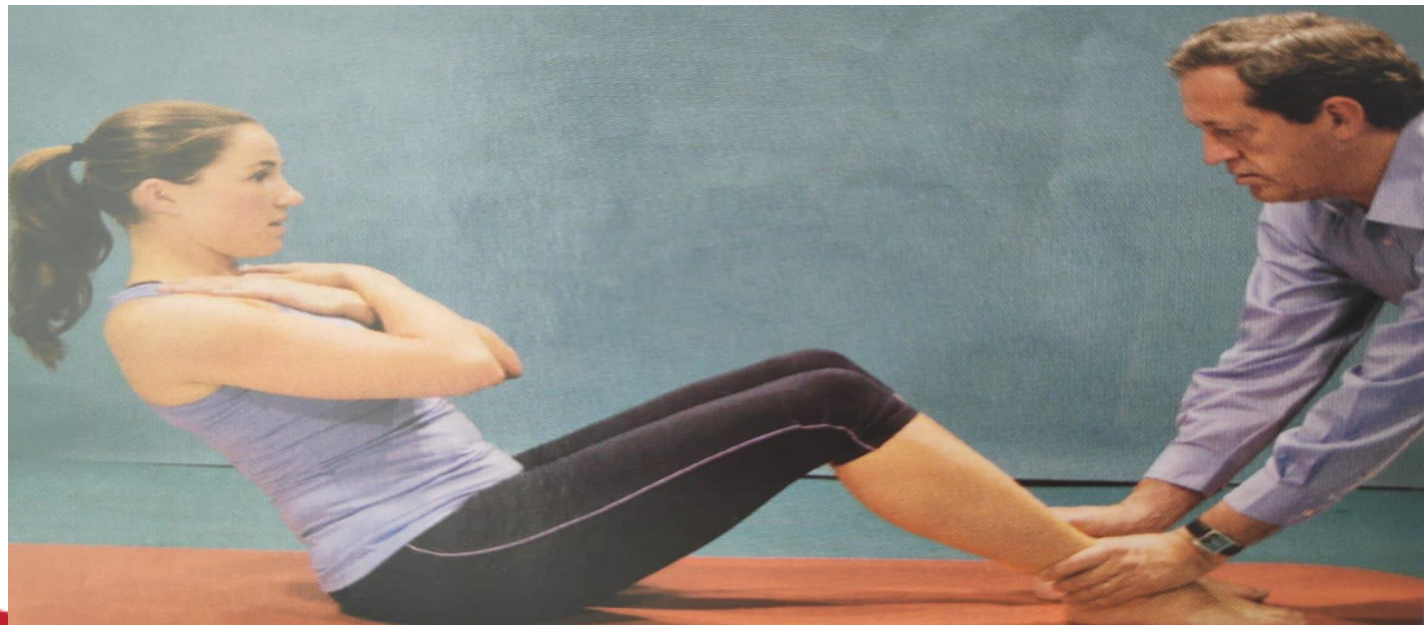


**scoring:** The score is the total time completed for each side. Compare the performance on the two sides. The table below indicates guideline rating scores for both males and females.

Rating	Time (seconds)
Excellent	> 90
Good	75 to 90
Average	60 to 75
Poor	< 60

## cont...

- **4.THE FLEXOR ENDURANCE TEST:** Used to assess the torso flexors.
- **Execution:** The athlete sits at 60° with both hips and knees at 90°, arms folded across the chest with the hands placed on the opposite shoulder, and toes secured under toe straps or by the examiner. Assess the time for how long the athlete can hold a position of seated torso flexion at 60°. Failure occurs when the athlete's torso falls below 60°



## cont...

- **5.THE EXTENSOR ENDURANCE TEST:** Used to assess the torso extensors.
- **Execution:** Prone position over the edge of the couch with the pelvis ,hips, and knees secured. The upper limbs are held across the chest with the hands resting on the opposite shoulders. Failure occurs when the upper body falls from horizontal into a flexed position.

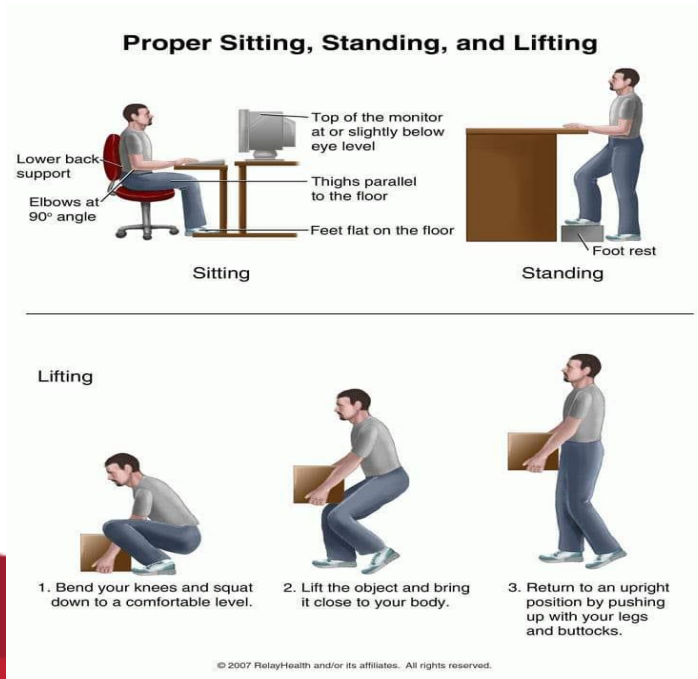
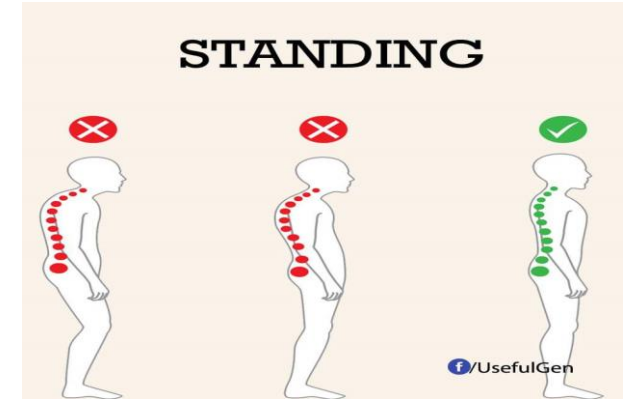


# REASONS BEHIND A WEAK CORE

- **IMPROPER POSTURES** ARE THE MAIN CULPRIT BEHIND A WEAK CORE SUCH AS:**PROLONGED SITTING**:Sitting for too long exerts 40% more spinal pressure than standing.**SLOUCHED POSITION** using mobile,watching TV, driving etc.
- **IMPROPER BREATHING PATTERN**:The proper functioning of diaphragm is essential for building core strength.When the diaphragm is less tense,your core muscles have a better chance of stepping up to their primary task.
- **POST SURGICAL PROCEDURES**:Like Hernias,Caesarean section,spinal surgeries etc.
- **IGNORING BACK PAIN**:It can worsen the core muscle strength badly.
- **POOR BALANCE** leads to overuse injuries due to faulty techniques.
- **LETTING STRESS BUILD UP**:Anger and stress cause muscle tension in the back.



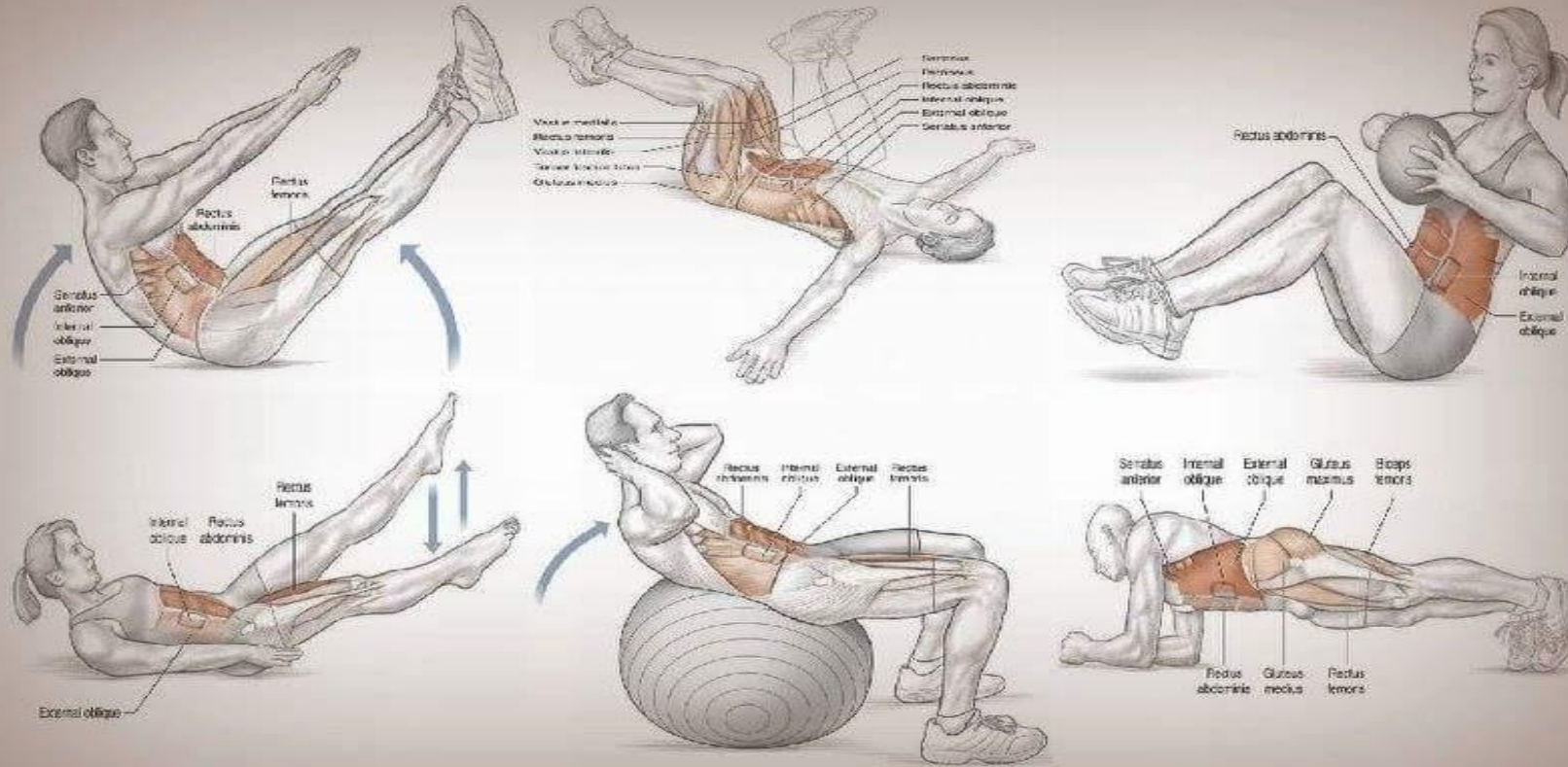
# PROPER ERGONOMICS





# ROAD TO START

## Abdominals Exercises



cont....

# CORE TRAINING

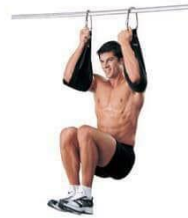
FLEXION

EXTENSION

ISOMETRIC



ISOTONIC



SIDE FLEXION

ROTATION

ISOMETRIC



ISOTONIC



@TheStrengthTherapist

# FUNCTIONAL CORE EXERCISES TO ENHANCE SPORTS PERFORMANCE

## 1. Front Plank

Targets: transverse abdominals



You should begin on the knees and hands and contract the belly and back muscles, drop down to the forearms while extending the legs out behind you, and you should end up resting on the balls of your feet. The hips should be up, the back should be straight, and relax the neck. Remain in this position for 3 seconds, and then return to the initial position.

Repeat the exercise 10 times.

**cont...**

## 2. Butterfly Crunch

Targets: rectus abdominus ("six-pack")



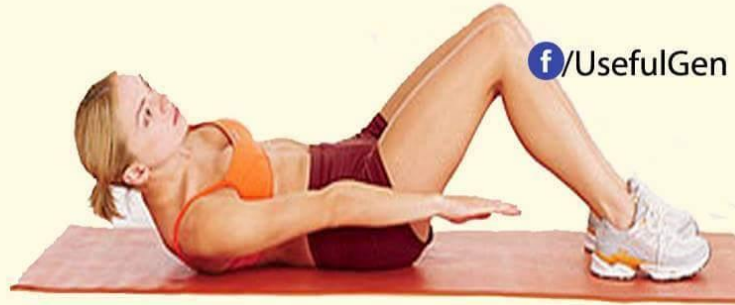
While lying on the back, place the soles close to your body and bend the knees to the side. The hands should be behind the head and the elbows in the same line with the ears. The back should lie flat on the ground and thus contract the belly muscles, breathe in and curl your chest up a few inches off the floor toward the legs. Lower to return to the initial position. Repeat this exercise 10 times.



**cont..**

### **3. Side to Side**

Targets: obliques (sides)



Bend the knees while lying on the floor, and the feet should be flat on the floor and the arms by the sides. Breathe in and contract the belly muscles by sliding the right hand toward the right foot. Keep the head and neck aligned, and the lower back pressed to the floor. Return to the initial position, switch sides and do 15 repetitions.



**cont...**

#### **4. Intermediate Moves (Scissors)**

Targets: obliques



Keep the finger behind the head and lie on the floor. Tighten the abs, elevate the left knee and touch it to your right elbow. Return to the initial position, and then lift the right knee and touch it to your left elbow. Switch sides for 15 reps, in 2 sets, but make sure you are engaging the belly muscles in a smooth motion, but the hands are relaxed in order not to pull on the neck.

**cont...**

## **5. Fingers to Toes**

Targets: rectus abdominus



The legs should be straight and extended towards the ceiling. The arms should lie by the body, and you should be in a lying position. Breathe in and tighten the abs as you crunch up from the waist and extend the hands toward the toes. The back should remain flat on the floor. Repeat in 2 sets of 15 reps.

**cont...**

## **6. Reverse Crunch with Resistance Bands**

Targets: transverse abdominals



Bend the knees while lying on the back, the arms should be by the body, and hold one end of a band in each hand, with the band wrapped around tops of shins. Lift the knees toward your chest until the hips are elevated and leave the floor. Remain in this position for 3 seconds; then, return to the initial position. Repeat 10 times in 2 sets.

**cont...**

## 7. Advanced Moves (Leg Swings)

Targets: obliques

f/UsefulGen



Lying on the back with the arms out to sides, legs and feet lifted, breathe in and draw navel in toward spine as you lower legs to left side about 5 inches from the floor. Return to the initial position and do the same on the right. Switch sides 15 times, in 3 sets.

# cont...

## 8. Ball Leg Lift

Targets: transverse abdominals



Lie with the face down on a ball and roll forward until the hands are placed on the floor. In this position, only the tops of the feet should be flat on the ball. Lift the left leg a few inches towards the ceiling, while keeping the back and right leg straight, hold for 3 seconds, and lower it, Repeat this 10 times, and then do it with the opposite leg. In order to obtain best results, you should add 2 repetitions each week.



**cont...**

## 9. Knee-Ups

Targets: rectus abdominus



f/UsefulGen

Brace yourself between the backrests of two sturdy chairs, keep the elbows slightly bent, your shoulders should remain down, and the neck relaxed, while the head and the chest are elevated. Your abs should be tight, breathe in and slowly bring the knees to your chest, but avoid swinging back and forth. If you find it a bit difficult at the beginning, you can raise one knee at a time. Repeat in 3 sets of 15 reps.

cont...

## Straight Arm Plank



PETER ARDITO

Start in push-up position with your hands on the floor beneath your shoulders, arms straight. Set your feet close together and straighten your legs, with your weight on your toes. Your body should form a straight line from your ankles to your head. Brace your abs and squeeze your glutes to help keep your body rigid. (Here are more [tips on how to do a high plank correctly](#).)

**Hold for 30 seconds to 1 minute.**

# cont...

## Plank with leg lift



PETER ARDITO

Get into a plank position on your forearms with your abs braced. Engage your glutes to lift and hold one foot a few inches off the floor, foot flexed. (If you love switching it up, try this [30-Day Plank Challenge](#), too.)

**Do 10 lifts with one leg. Switch sides; repeat.**

# cont...

## Straight arm plank with shoulder touch



PETER ARDITO

Start in a high-plank position with your hands on the floor beneath your shoulders, arms straight. Set your feet close together and straighten your legs, with your weight on your toes. Drop your shoulder blades down and back and keep a straight line from your head to your ankles. Keeping your hips still (they'll want to move!), lift your right hand and tap your left shoulder. Slowly replace your right hand and repeat on the left.

**Continue alternating for 30 seconds to 1 minute.**

# cont...

## Side plank with leg lift



PETER ARDITO

Start in side plank position with your left elbow below your shoulder, feet stacked. Keep your core braced as you lift your right (top) leg as high as you can while maintaining proper form. Flex your foot and point your toes slightly down. Lower your leg. That's 1 rep.

**Do 10 reps. Switch sides; repeat.**



# cont...

**LEVEL I 20 seconds    LEVEL II 40 seconds    LEVEL III 60 seconds**  
hold each pose before moving for 3 seconds



**1. Tricep Extensions**



**2. Knee to Elbow Planks**



**3. Push-Up Plank Into Downward Dog**



**4. Push-Up Plank Into Upward Dog**



**5. Knee to Elbow Planks**



**6. Upward Dog Back Kicks**



**7. Plank Rotation & Reach**



**8. Push-Up Plank Tilts**

**cont....**

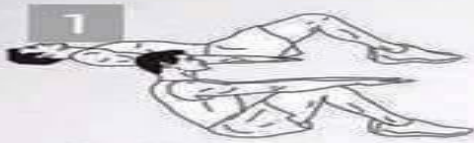
# total abs



cont...

# abs of steel

NEILA REY WORKOUT © neilarey.com



**10** sit-ups



**12** flutter kicks



**10** leg raises



**10** air bike crunches



**10** knee crunches



**10** leg pull-ins



**10** plank arm raises



**30sec** elbow plank



**10** body saw

**level I** 3 sets **level II** 5 sets **level III** 7 sets **rest between sets** up to 2 minutes



cont..

## Back and Core Strength #1

#1 Tabletop



#2 Bridging



#3 Pilates Crunch



#4 The Dart



#5 Front Bridge



#6 The 100



#7 Airplaning



cont...

# EXERCISE GUIDE

# GYM BALL

## 1. Squat



Starting position



Ending position

## 2. Hamstring



Starting position



Ending position

## 3. Back hyperextension



Starting position



Ending position

## 4. Crunch



Starting position



Ending position

## 5. Side crunch



Starting position



Ending position

## 6. Crunch



Starting position



Ending position

## 7. Sit-up



Starting position



Ending position

## 8. Reverse Jack-knife



Starting position



Ending position

## 9. Plank rollout



Starting position



Ending position

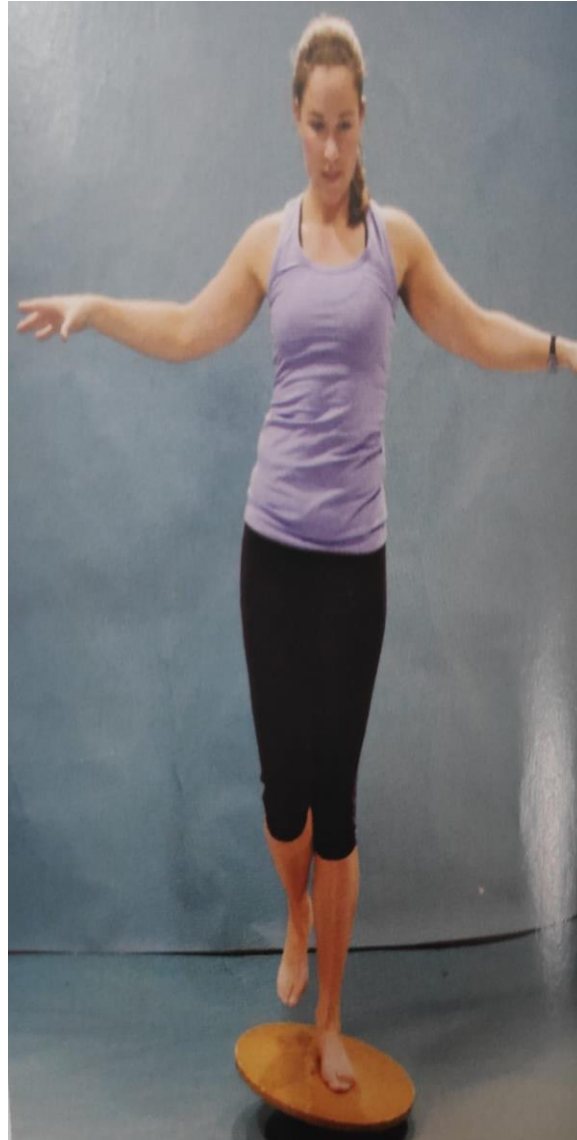
## 10. Plank



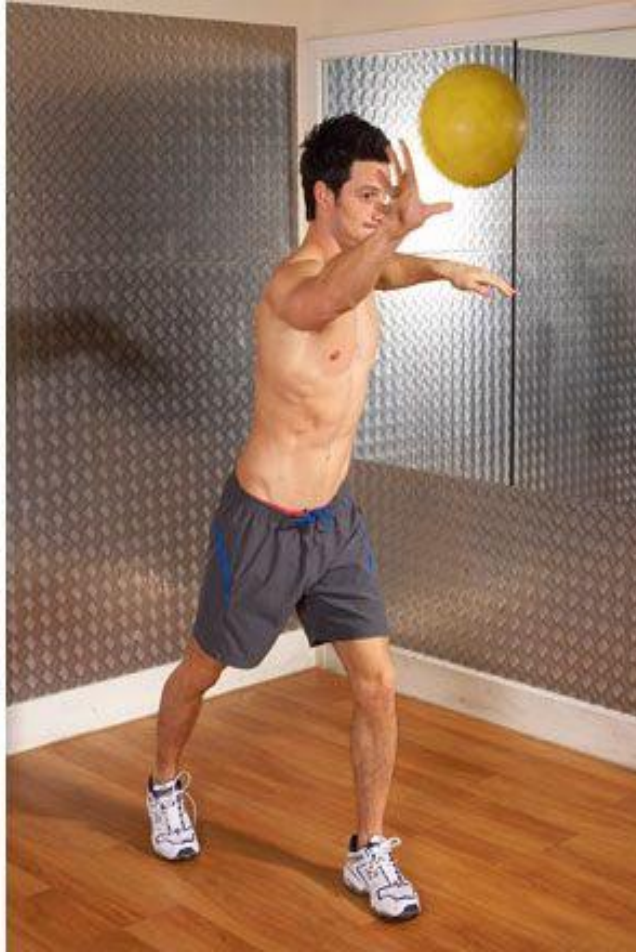
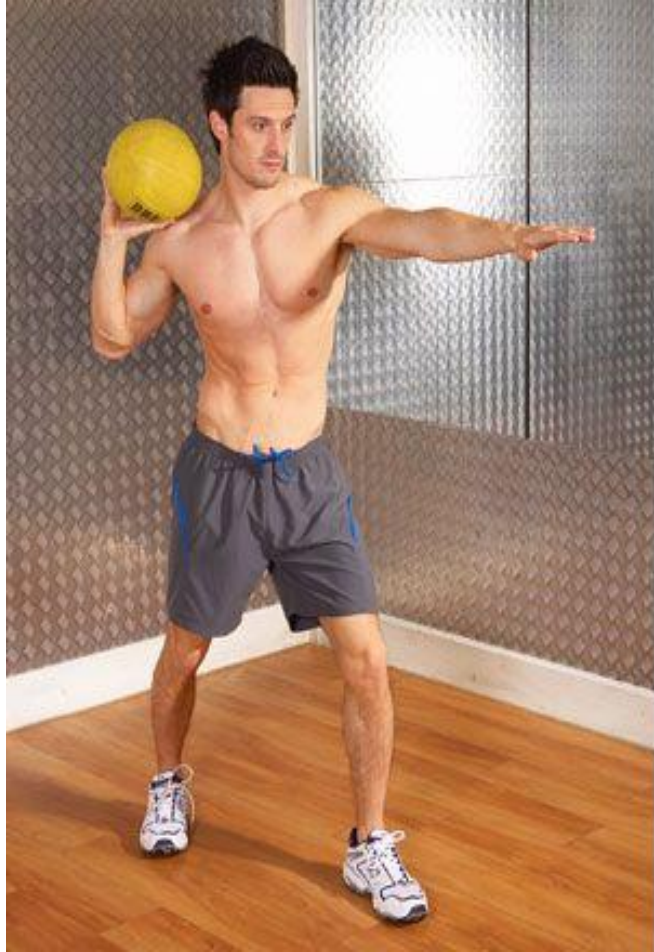
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# PROGRESSIVE BALANCE EXERCISES

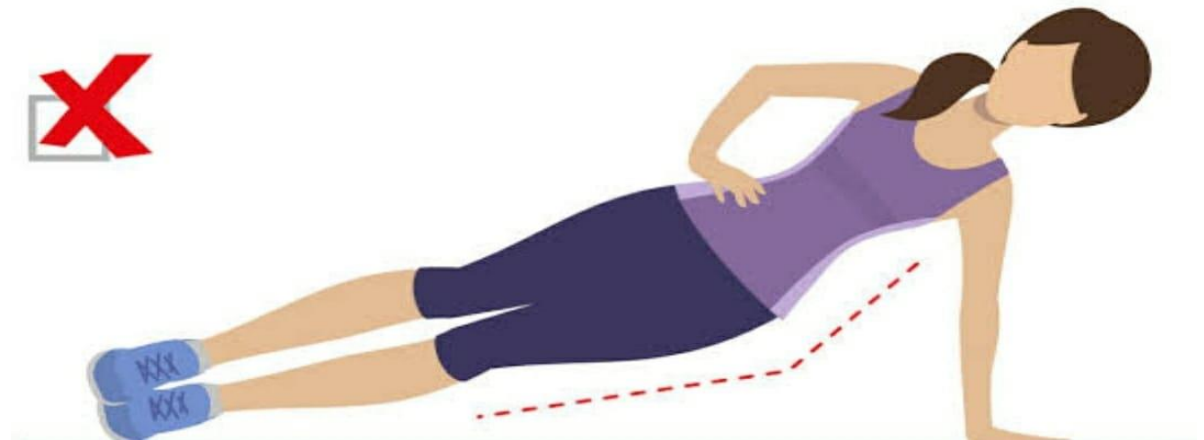
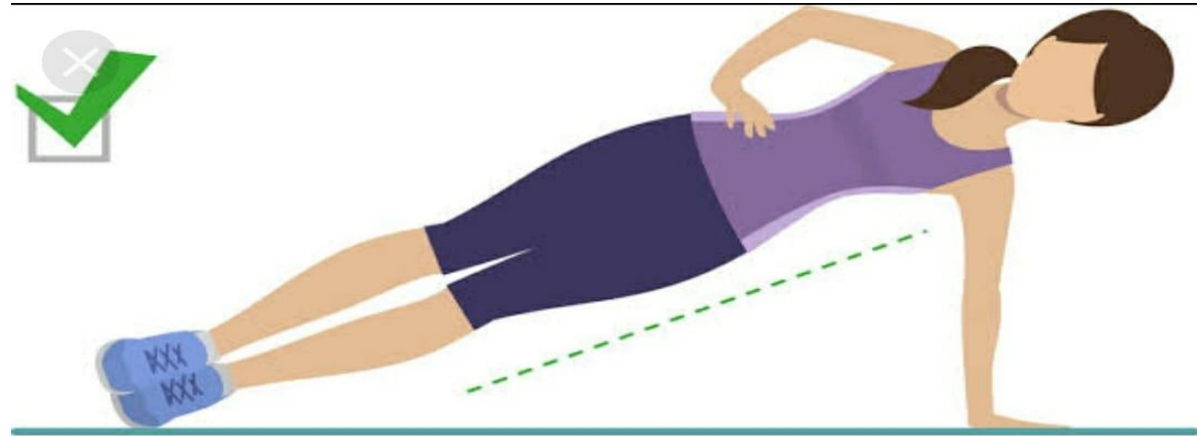
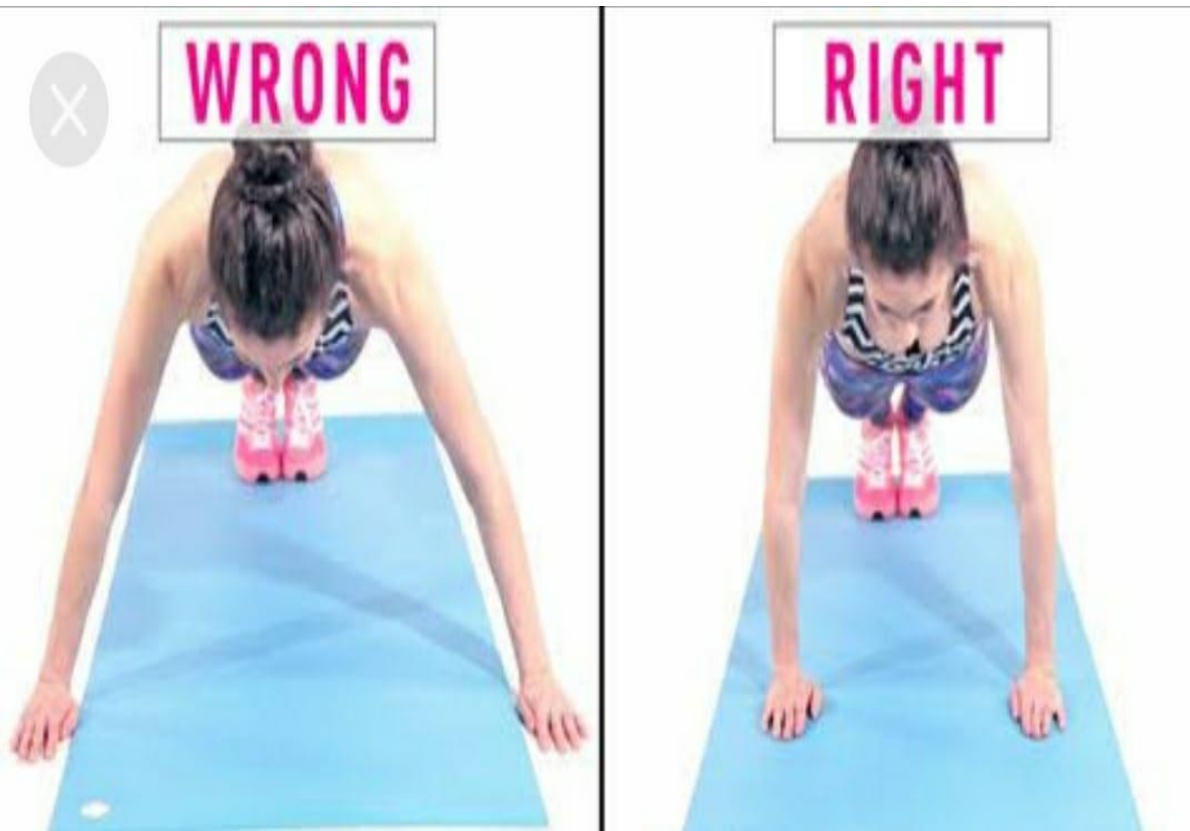


# Boxing Specific Core Exercises

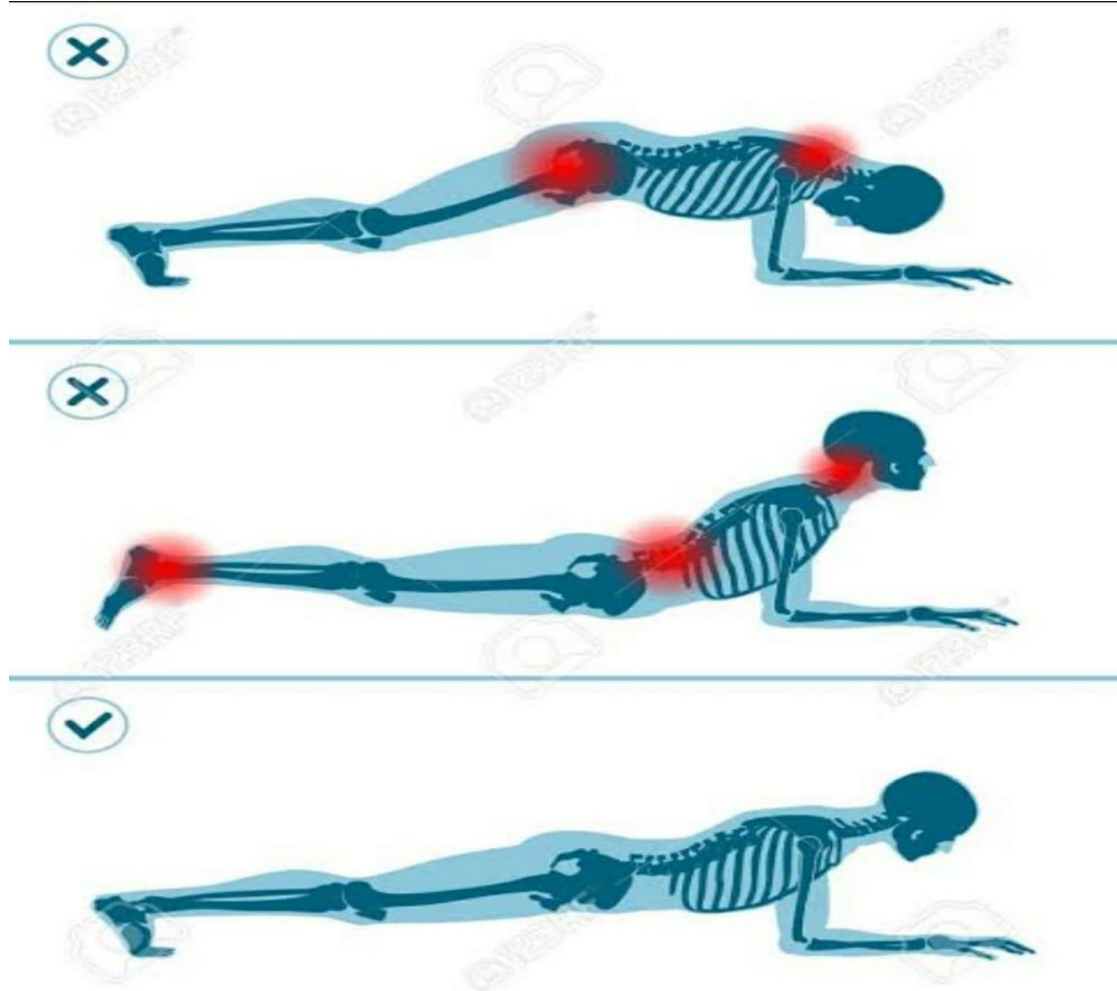




# EFFECTIVE CORRECTION OF FAULTY TECHNIQUES



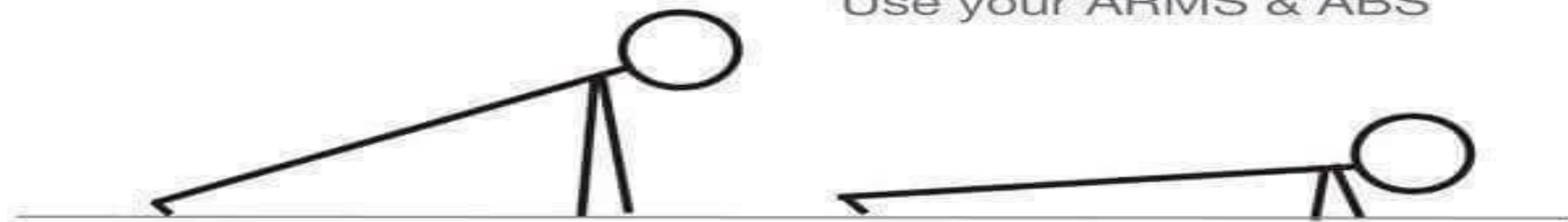
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## ★ Good Push-Ups ★

Use your ARMS & ABS



## Bad Push-Ups

Not your BACK & BUTT

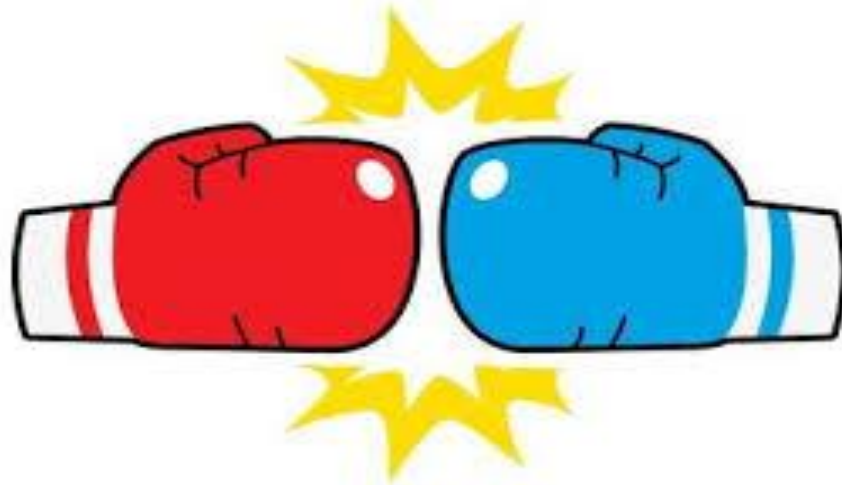




# REFERENCES....

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- The Principles of Exercise Therapy : M.Dena Gardiner
- Internet sources: American College Of Sports Medicine, The Topend Sports.com, Physiopedia.com, Shape.com, google, facebook etc.



# THANK YOU



For any further queries you may take help:  
[physiogauravahluwalia@gmail.com](mailto:physiogauravahluwalia@gmail.com), 9915139828