

**BALANCE, AGILITY AND
FALL PREVENTION**



BALANCE, AGILITY AND FALL PREVENTION

WHAT IS BALANCE??

NOTHING UNTO ITSELF

MULTIPLE SYSTEMS WORKING TOGETHER

**DESCRIPTION OF THE EFFECTS OF THE SYSTEMS
WORKING PROPERLY TOGETHER**



BALANCE, AGILITY AND FALL PREVENTION

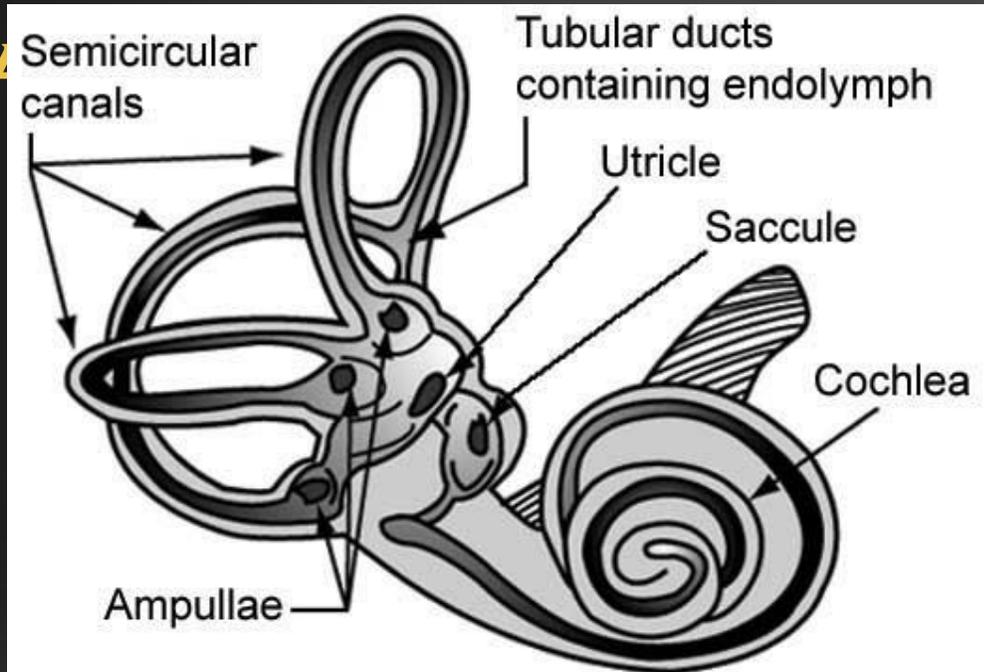
TYPES:

STATIC BALANCE: EVEN DISTRIBUTION OF WEIGHT
ENABLING SOMEONE TO REMAIN UPRIGHT AND
STEADY.

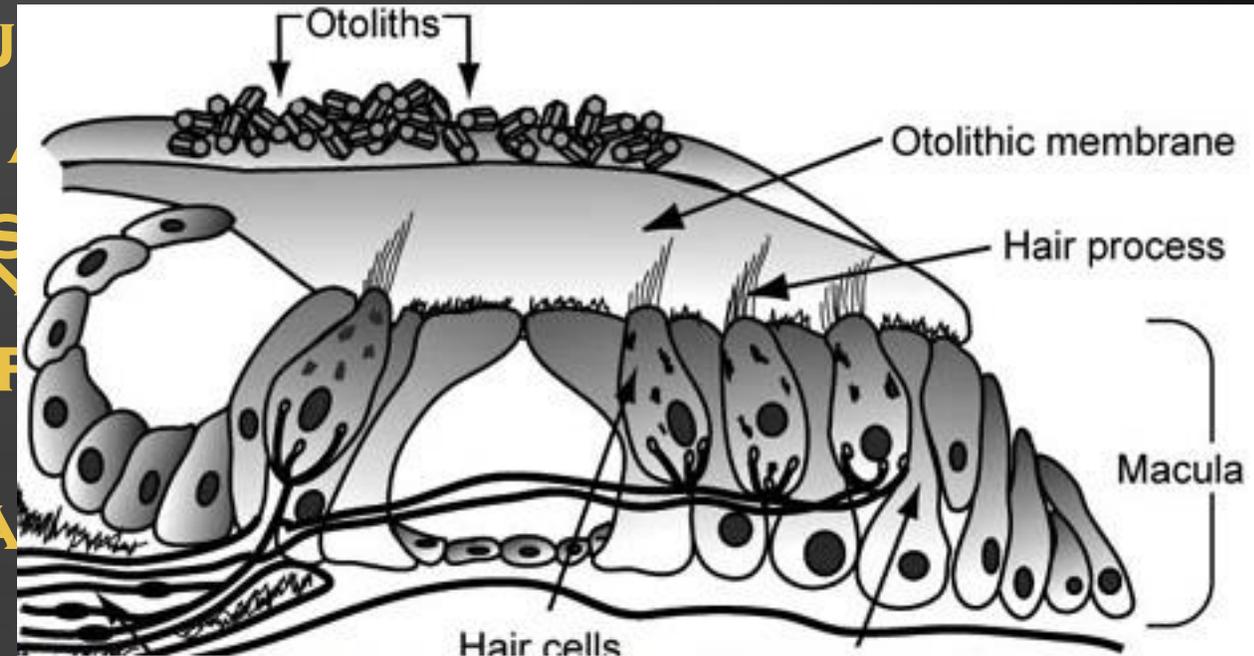
DYNAMIC BALANCE: ABILITY TO MAINTAIN
POSTURAL STABILITY THROUGH MOVEMENT

BALANCE, AGILITY AND FALL PREVENTION

PRIMARY SYSTEMS THAT MAKE UP BALANCE



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BALANCE, AGILITY AND FALL PREVENTION

IMPORTANCE OF MAINTAINING, DEVELOPING BALANCE AND FALL PREVENTION

OVER 800,000 ADULTS OVER 65 ARE

[CDC
1]

HOSPITALIZED FOR FALLS ANNUALLY
ADJUSTED FOR INFLATION DIRECT MEDICAL COST

[5]

OF \$31 BILLION A YEAR
FALLING ONCE DOUBLES YOUR CHANCES OF

[6]

FALLING AGAIN
SIGNIFICANT CAUSE OF DISABILITY

[4]

75% OF ALL DEATHS DUE TO FALLS OCCUR IN 13% OF
US POPULATION. (65+)

WHAT ABOUT AGILITY?

**ABILITY TO MOVE AND/OR CHANGE DIRECTION
QUICKLY OR *EASILY***

**REACTION TIME, POWER, ROM, SEDENTARY (LACK
OF EXPOSURE)**

**NEEDED TO RECOVER FROM POTENTIAL FALLS
AND MOVE QUICKLY WHEN NECESSARY.**

BALANCE, AGILITY AND FALL PREVENTION

FALLING ISN'T AN INEVITABLE FACT OF AGING

ASSOCIATED WITH BREAKDOWNS IN THE BIG 3

SYSTEMS
ENVIRONMENTAL COND

POSTURAL CHANGES

MUSCLE WEAKNESS ES

IN FACT SINGLE MOST
FALLS. 4 X INCREASE



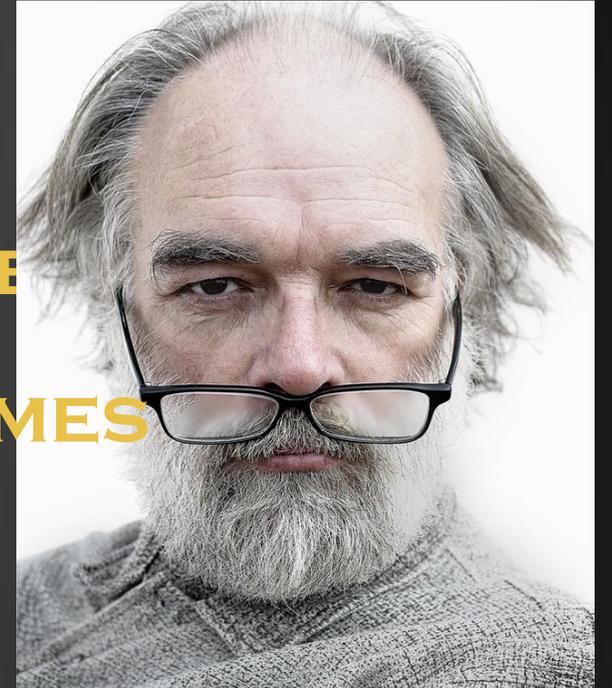
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SYSTEM ONE: VISION

OUR VISION DOES CHANGE WITH AGE
INCREASES RISK OF FALLS BY ^[7]2.5 TIMES

INCLUDE CATARACTS, GLAUCOMA,
AND MACULAR DEGENERATION

IMPORTANT TO GET EXAM ANNUALLY, ADJUST
PRESCRIPTION AS NEEDED.

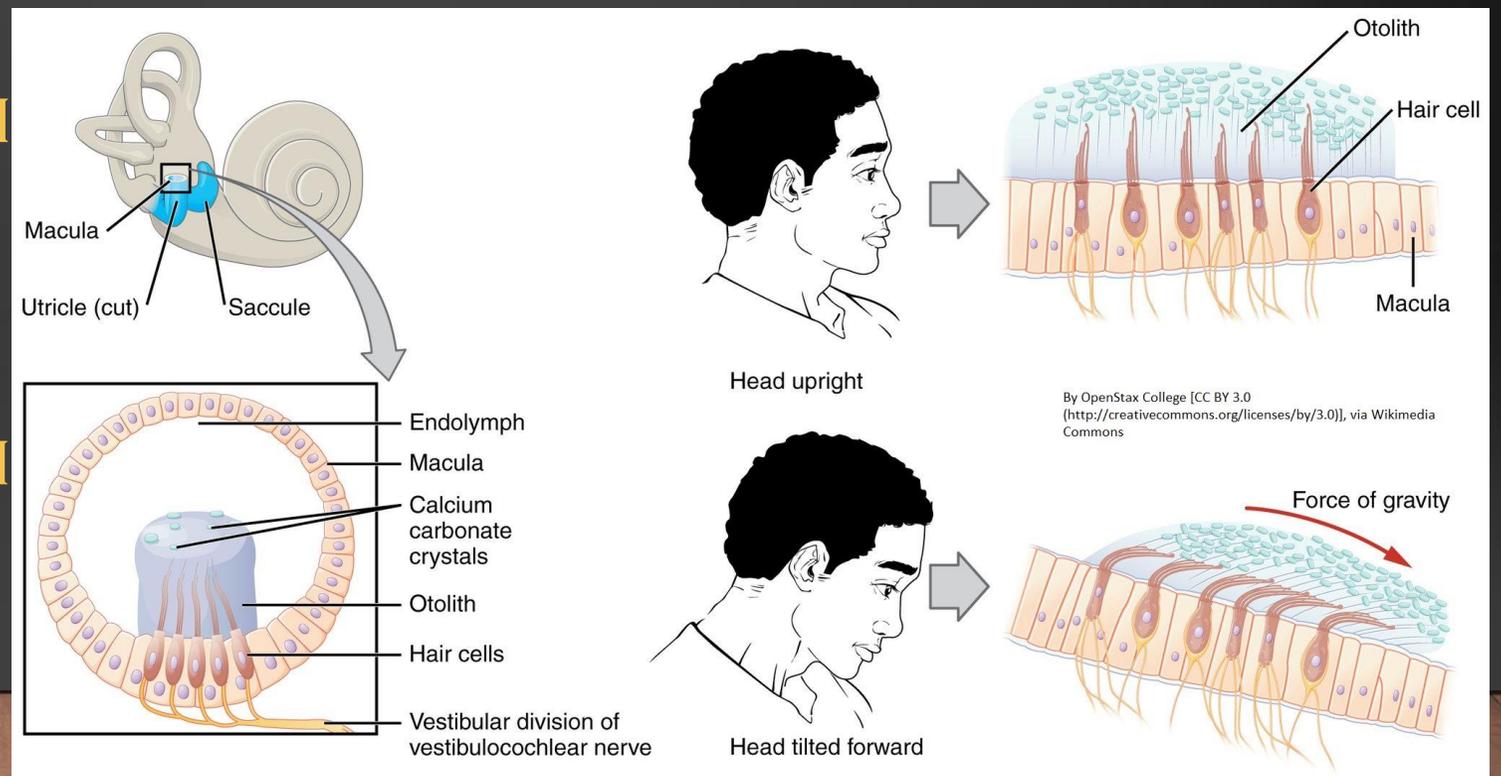


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SYSTEM TWO: VESTIBULAR

AFTER 40 VESTIBULAR NEURONS DECREASE IN NUMBER AND SIZE

INCREASES RISK OF FALLS
DIFFICULT TO ISOLATE
DUE TO IT'S INTERACTION WITH OTHER SYSTEMS



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SYSTEM THREE: SOMATOSENSORY

SKIN SENSITIVITY REDUCED WITH AGE

**LEADS TO IMPAIRED INPUT
AND VIBRATION RECEPTION**

**DIFFICULT TO STAND OR
CHANGES IN HEEL TO TOE**



NON EXERCISE SOLUTIONS

MEDICATIONS- DIZZINESS, FAINTING,
CONFUSION, ETC...
CLUTTER

LOSE RUGS- PICK FEET UP DON'T SHUFFLE

POOR LIGHTING

RUSHING AND NOT BEING MINDFUL OF

SURROUNDINGS

FOOTWEAR- CAUSES FOOT PAIN, BAD SUPPORT

VISION AND HEARING CHECKUPS ONCE PER
YEAR

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THE SECRET KEY TO
PREVENTING FALLS?
COG OVER
BOS

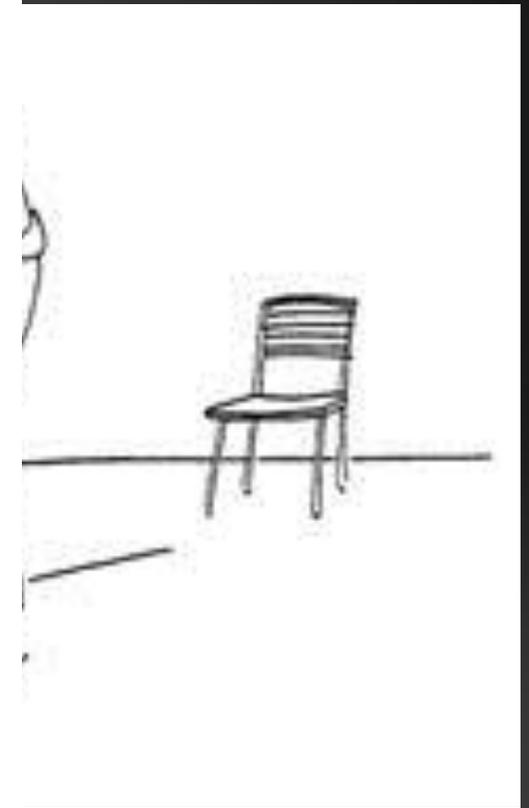
BALANCE AND AGILITY ASSESSMENT

Functional Fitness Standards for Older Adults

Test	AGE GROUPS						
	60-64	65-69	70-74	75-79	80-84	85-89	90-94
Chair stand (# in 30 sec)							
Women	15	15	14	13	12	11	9
Men	17	16	15	14	13	11	9
Arm curl (# in 30 sec)							
Women	17	17	16	15	14	13	11
Men	19	18	17	16	15	13	11
6-minute walk (# of yd)							
Women	625	605	580	550	510	460	400
Men	680	650	620	580	530	470	400
2-minute step (# of steps)							
Women	97	93	89	84	78	70	60
Men	106	101	95	88	80	71	60
8-foot up-and-go (sec)							
Women	5.0	5.3	5.6	6.0	6.5	7.1	8.0
Men	4.8	5.1	5.5	5.9	6.4	7.1	8.0

The functional fitness standards for each age group are the fitness scores needed to maintain functional mobility and physical fitness until late in life despite normal age-related declines, as described in previously published research (Rikli & Jones, 2012).

AND



BALANCE, AGILITY AND FALL PREVENTION

HOW DOES EXERCISE HELP WITH FALL

PREVENTION?

[8-10]

IMPROVES STRENGTH, BALANCE AND GAIT

[11-

IMPAIRMENT IN HEALTHY

AND IMPAIRED ^{12]}

PRACTICE FUNCTIONAL ACTIVITIES THAT GIVE GREATER
CONFIDENCE

EXPOSURE TO HARDER TASKS SO DAILY LIFE FEELS
EASIER

REPETITION AND GPO BUILDS COMPETENCE AND
REMOVES FEAR



BALANCE AND AGILITY GUIDELINES

ACSM EXERCISE RX:

1. PROGRESSIVELY DIFFICULT POSITIONS
GRADUALLY REDUCE SEMI-TANDEM

SINGLE LEG

2. DYNAMIC MOVEMENTS THAT CHALLENGE

CENTERS OF GRAVITY (MODEL WALK),

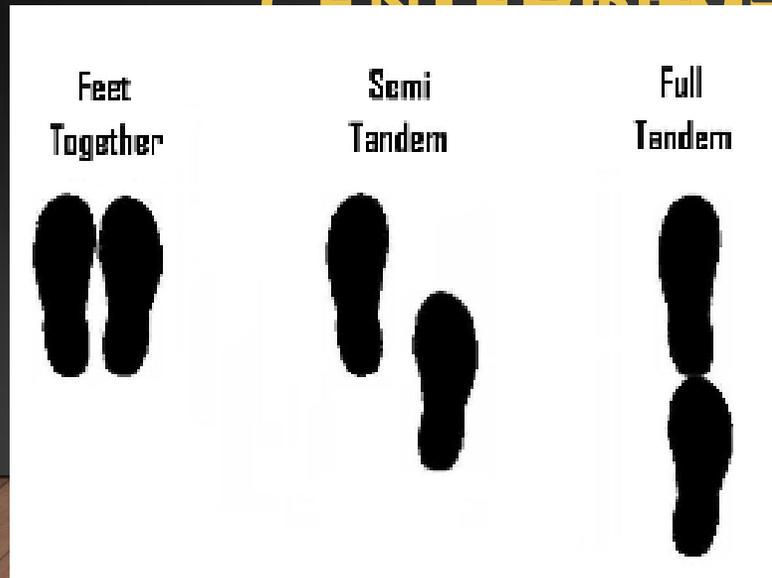
OR TURNS

THE MUSCLES RESPONSIBLE FOR

SUPPORT

USING SENSORY SYSTEMS

TOSS AND CATCH, GENTLE SHOVEDS, SPORTS AND



BALANCE AND AGILITY IMPROVEMENT

DON'T JUST DO BALANCE EXERCISES ALONE

**DEPT. HEALTH AND HUMAN SERVICES: 90MIN
WEEK OF BALANCE AND MODERATE MUSCLE
STRENGTHENING.**

**BEST EXERCISES VARIETY OF TASKS WITH VARYING
SENSORY AND COGNITIVE CHALLENGES.**

BALANCE IS MULTIFACETED

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STUDY OF ESTROGEN-DEPLETED POSTMENOPAUSAL^[1]
WOMEN

IMPACT OF RESISTANCE TRAINING ON BALANCE

TWO DAYS PER WEEK OF DYNAMIC RESISTANCE

TRAINING FOR 12 MONTHS

IMPROVEMENT IN STRENGTH, MUSCLE MASS, BONE

MASS AND
DYNAMIC BALANCE

BALANCE AND AGILITY IMPROVEMENT

EXAMPLES

MORE SIMPLE:

CALF RAISES, SINGLE LEG BALANCING, WEIGHT

SHIFT, TANDEM STANCE

MORE COMPLEX:

BALANCE WITH EYES CLOSED, HEAD MOVEMENT,
UNSTABLE SURFACE, EYES TRACKING

WALKING CHANGE SPEEDS AND DIRECTION,

~~BALANCE~~ ~~TOSS AND CATCH~~, GENTLE SHOVELS, SPORTS AND

~~WALKING~~ AND TOSS AND CATCH BALL, TURN HEAD

IMPORTANCE OF LATERAL STABILITY

FALLS ARE LEADING CAUSE OF INJURY. BUT NOT ALL FALLS RESULT IN HIP FRACTURE.

FALLS TO THE SIDE WITH IMPACT TO HIPS HIGHER
INCIDENT OF FRACTURE

[2]

NINE MONTHS OF TRAINING WITH SQUATS, LUNGES, RISING FROM CHAIR & JUMPING. ENCOURAGED DEVELOPMENT HIP ABDUCTORS AND LEG EXTENSORS RELATED TO LATERAL STABILITY. IMPROVED LATERAL POSTURAL STABILITY ALONG WITH STRENGTH, POWER & MASS

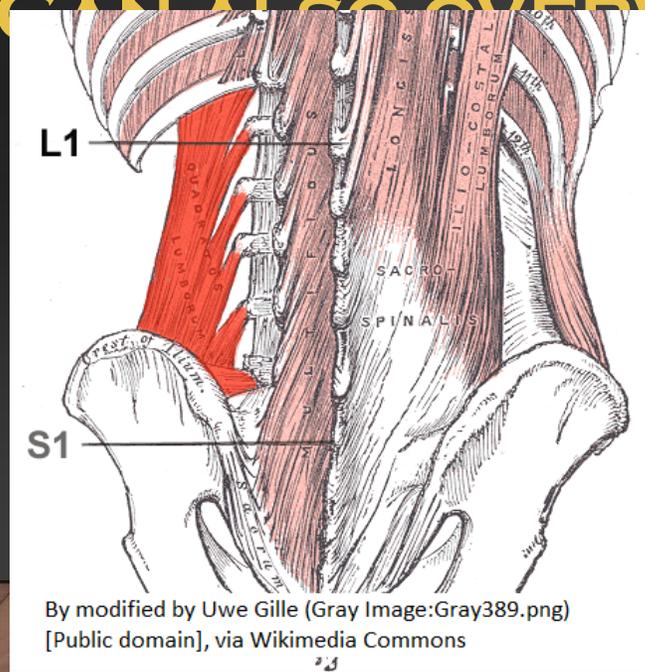
IMPORTANCE OF LATERAL STABILITY

ABDUCTORS BOTH ABDUCT AND STABILIZE.

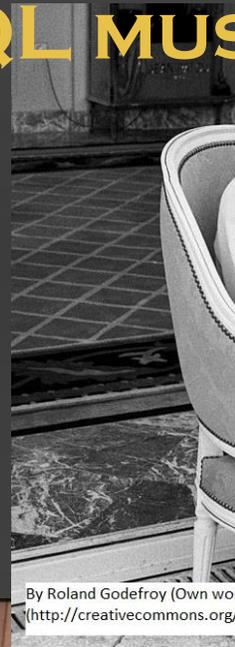
TRAIN BOTH
CROSSED LEG SITTING TIGHTER

WEAKEN SCABDUCTIONS, BALANCE

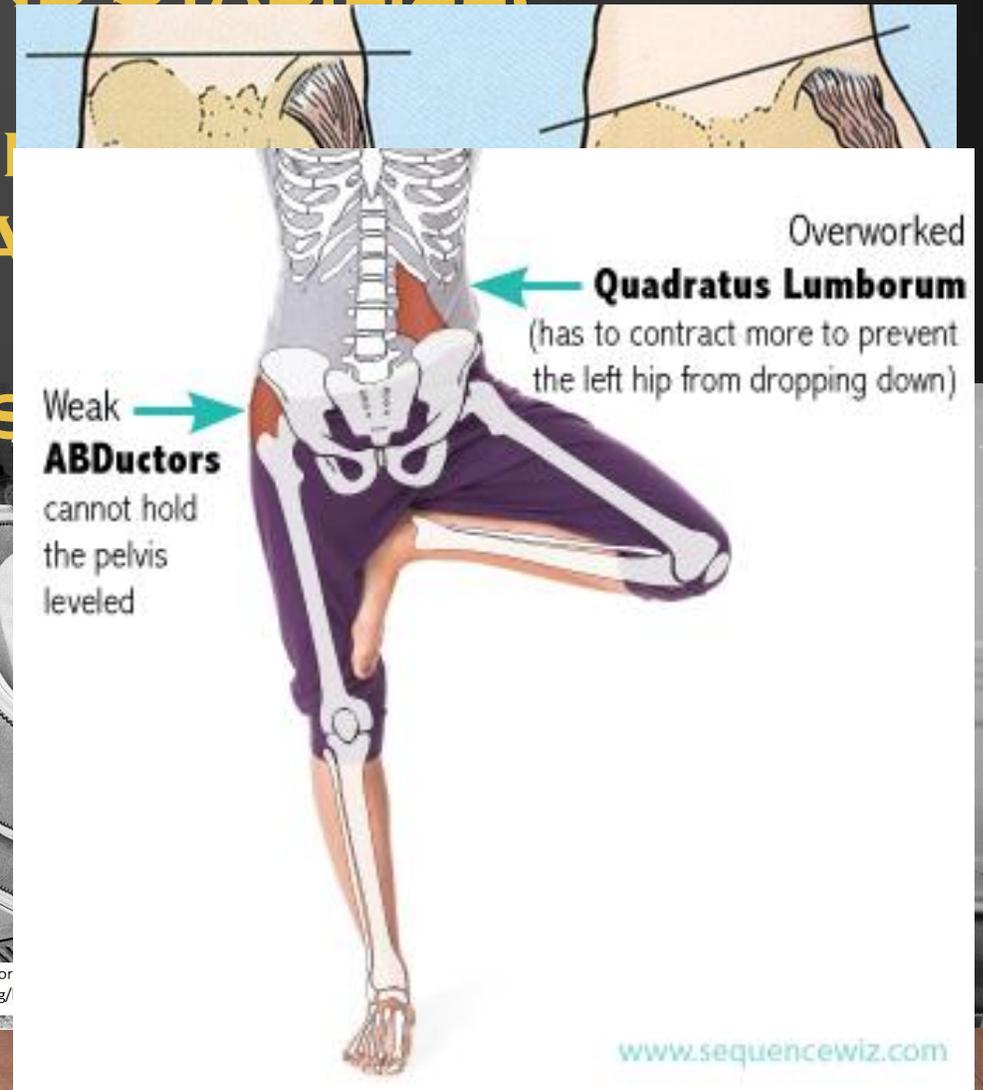
CAN ALSO OVERWORK QL MUS



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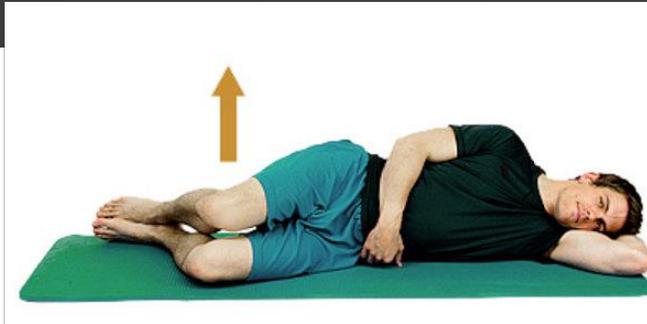


IMPORTANCE OF LATERAL STABILITY

WAYS TO STRENGTHEN

ISOMETRIC

SIDE ABDUCTION, CLAM SHELL, BAND



HOW TO GET UP OFF THE FLOOR

ALL ABOUT ANGLE

LOG ROLL TO SIDE

GET ON ALL FOURS

MOVE TO SOLID CONTACT

LIFT UP YOUR STOMACH

DEGREE BEND IN

IF YOU CAN TUCK THE TOE OF THE OTHER LEG UNDER

AND GRIP THE GROUND

WITH ONE HAND ON FRONT LEG PUSH THROUGH

FRONT HEEL AND BACK TOE PROPELLING YOURSELF

FORWARD AND UP.



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