

PSEP KOMODO DRAGON

Pencak Silat Engagement Programs
Student Journey



The PSEP KD#1, Program #1 (Komodo Dragon) Overview provides a detailed framework for optimizing injury prevention and muscle development across key body regions, integrating targeted training techniques supported by accredited institutions

Pencak Silat USA

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PSEP Program #1 (Komodo Dragon) Overview

The PSEP KD#1, Program #1 (Komodo Dragon) Overview provides a comprehensive outline of body regions targeted for injury prevention and muscle development, each with associated training techniques and accredited institutions. It addresses key areas such as the back, hamstrings, quadriceps, calves, groin, arms, abdomen, hips, chest, shoulders, feet, ankles, knees, elbows, hands, wrists, and neck. For each area, it highlights common injuries, targeted muscle development, and functional benefits, emphasizing proper techniques and stability to enhance core strength, balance, and overall mobility. Cognitive benefits include improved focus, mental resilience, and decision-making skills derived from structured training routines and mindful engagement with the exercises. Accredited institutions are listed with their specific areas of expertise, covering everything from breathing and core stability to postural awareness, injury recovery, and muscle conditioning, aligning with the PSEP Komodo Dragon theme's focus on strength and resilience.

Key Principles for Exercise and Muscle Health

• Breathing Techniques

Proper breathing techniques enhance engagement of muscles such as the transversus abdominis, pelvic floor, and neck. Exhaling during exertion improves muscle activation and core support.

Accredited Institute: American Council on Exercise (ACE) – known for certifications in breathing and exercise physiology.

Core Stability

Strengthening lower abdominals and pelvic floor muscles enhances core stability, which supports balance and power in movement.

Accredited Institute: National Academy of Sports Medicine (NASM) – offers courses on core stability training.

• Postural Awareness

Good posture reduces strain, lowering the risk of injuries like whiplash and minimizing chronic strain. **Accredited Institute**: Gray Institute – specializes in functional movement science and postural training.

• Functional Benefits

Exercises that strengthen the core and lower back muscles improve daily functional movements, posture, and reduce injury risk.

Accredited Institute: National Strength and Conditioning Association (NSCA) – focuses on functional movement benefits.

• Age-Related Changes

Over time, non-injury-related factors such as natural aging, repetitive use, and changes in bone structure can contribute to conditions like osteoarthritis, where cartilage deteriorates, leading to stiffness, discomfort, and reduced mobility. Similarly, age-related changes in the muscular system, including the gradual loss of muscle mass (sarcopenia), reduced muscle strength, and decreased elasticity of tendons and ligaments, can further impact mobility and joint function. Together, these changes highlight the importance of proactive care for joint and muscle health as we age.

Inclusive Exercise Modifications

All PSEP exercises are designed with modifications to accommodate individual limitations, ensuring accessibility and safety for participants with varying physical abilities.

Comprehensive list of common injuries reported, associated with targeted muscle development

Focus: Unintentional injury and deteriorates

Neck

- Common Injuries: Whiplash/Strains Involves Sternocleidomastoid and Trapezius.
- Targeted Muscle Development: Sternocleidomastoid, Trapezius, Longus coli, Scalenes, Suboccipitals
- Accredited Institute: NSCA offers training on neck injury prevention and muscle strengthening.

Shoulders

- **Common Injuries**: Rotator Cuff Tear/Rupture, Impingement Syndrome Involves Supraspinatus, Infraspinatus, Subscapularis, and Teres minor.
- Targeted Muscle Development: Supraspinatus, Infraspinatus, Subscapularis, Teres minor, Middle trapezius, Lower trapezius, Serratus anterior, Rhomboids, Deltoid
- **Accredited Institute**: Gray Institute focuses on shoulder injury prevention and strengthening. ACE covers specific shoulder and rotator cuff training techniques.

Arms

- **Common Injuries**: Bicep Tear Primarily affects the long head of the biceps brachii due to its role in shoulder stability.
- Targeted Muscle Development: Arm Muscles: Biceps brachii, Triceps brachii, Brachialis
- Accredited Institute: ACE covers targeted training for arm muscles in its certification programs. American Orthopaedic Society for Sports Medicine (AOSSM) focuses on arm injuries.

Elbows

- Common Injuries: Golfer's Elbow (medial epicondylitis)/Tennis Elbow (lateral epicondylitis) Primarily affects Flexor carpi radialis brevis (Golfer's) and Extensor carpi radialis brevis (Tennis).
- Targeted Muscle Development: Wrist Extensors, Wrist Flexors, Supinator, Pronator teres Accredited Institute: American Orthopaedic Society for Sports Medicine (AOSSM) offers specialized programs for elbow injuries.

Hands and Wrists

- Common Injuries: Trigger Finger Involves the Flexor digitorum profundus.
- Targeted Muscle Development: Flexor Carpi Radialis, Flexor Carpi Ulnaris, Flexor Digitorum Superficialis, Extensor Carpi Radialis Longus, Extensor Carpi Radialis Brevis, Extensor Carpi Ulnaris, Extensor Digitorum, Flexor Digitorum Longus
- **Accredited Institute**: American Academy of Orthopaedic Surgeons (AAOS) covers hand and wrist injuries, including Trigger Finger.

Back

- Common Injuries: Sprain/strain, degenerative disc, facet joint dysfunction, muscle spasms, osteoarthritis
- Targeted Muscle Development: Erector spinae, latissimus dorsi, multifidus, quadratus lumborum, abdominals
- Accredited Institute:

Abdomen

- Common Injuries: Abdominal Strain or Cramps, Rectus Diastasis
- **Targeted Muscle Development**: Core Muscles: Rectus abdominis, Transversus abdominis, External and Internal obliques
- Accredited Institute: Gray Institute known for its expertise in core muscle development. National Strength and Conditioning Association (NSCA) emphasizes injury prevention in core muscles.

Chest

- **Common Injuries**: Chest Contusion or Pectoral Tear Primarily impacts Pectoralis major and Pectoralis minor.
- Targeted Muscle Development: Chest Muscles: Pectoralis major, Pectoralis minor
- **Accredited Institute**: NSCA includes chest muscle strength and injury prevention. American College of Sports Medicine (ACSM) provides insights into chest injury prevention

Hips and Pelvic Floor

- Hips
 - **Common Injuries:** Hip Contusion, hip impingement, labral tear Affects the Gluteus maximus, Iliopsoas, Deep hip rotators, and Adductors.
 - **Targeted Muscle Development:** Hip Muscles: Gluteus maximus, Gluteus medius, gluteus minimus, Iliacus, psoas, Tensor fasciae latae, Deep hip rotators, hamstrings
 - Accredited Institute: APTA offers hip stability and injury prevention programs.

Pelvic Floor

- Common Injuries: Incontinence, pelvic organ prolapse
- Targeted Muscle Development: Levator Ani Group, Coccygeus, Obturator Internus
- Accredited Institute: NASM covers targeted exercises for hip and pelvic stability.

Groin

- Common Injuries: Groin Strain, pubic symphysis dysfunction
- Targeted Muscle Development: Adductor Magnus, Adductor Longus, Gracilis, Pectineus
- Accredited Institute: International Association for Dance Medicine & Science (IADMS) specializes in muscle stability for the adductors. American College of Sports Medicine (ACSM) provides courses on groin strain prevention and recovery.

Hamstrings

- **Common Injuries**: Hamstring Strain or Tear Typically involves the Biceps femoris, Semitendinosus, and Semimembranosus muscles. Strains are more common in the biceps femoris.
- Targeted Muscle Development: Hamstring Group: Biceps femoris, Semitendinosus, Semimembranosus
- Accredited Institute: American College of Sports Medicine (ACSM) includes hamstring-focused courses in exercise physiology. International Association for Dance Medicine & Science (IADMS) provides insights on hamstring injury prevention.

Quadriceps

- Common Injuries: Quadriceps Strain or Tear Rectus femoris is the most prone to strain, as it crosses two joints (hip and knee). Runner's Knee (Patellofemoral Pain Syndrome) Primarily involves the Quadriceps group and Iliotibial band.
- Targeted Muscle Development: Quadriceps Group: Rectus femoris, Vastus lateralis, Vastus medialis, Vastus intermedius
- **Accredited Institute**: American Physical Therapy Association (APTA) focuses on targeted quadriceps strengthening. American Orthopaedic Society for Sports Medicine (AOSSM) focuses on injuries and rehabilitation of the quadriceps.

Knees

- Common Injuries: Patellar Tendinitis/Tendinosis: Primarily affects the Rectus femoris and patellar tendon.
- Targeted Muscle Development: Quadriceps, Hamstrings, Hip Musculature
- Accredited Institute: European College of Sport Science (ECSS) offers programs that address patellar tendinitis. NASM – specializes in training to prevent knee injuries like Runner's Knee. ACSM – emphasizes knee stability in functional movement

Calves

- Common Injuries: Calf Strain Involving the Gastrocnemius and Soleus.
- Targeted Muscle Development: Calf Muscles: Gastrocnemius, Soleus
- **Accredited Institute**: NASM offers specialized training on calf muscle development. International Federation of Sports Physical Therapy (IFSPT) emphasizes calf strain prevention and recovery.

Feet and Ankles

- Common Injuries: Plantar Fasciitis Involves the Plantar fascia, often supported by Flexor digitorum longus.
- Targeted Muscle Development: Foot and Ankle Stability: Flexor digitorum longus, Quadratus plantae, Gastrocnemius
- **Accredited Institute**: American Physical Therapy Association (APTA) offers courses on ankle stability. IFSPT covers foot and ankle injury prevention and management

Common desired (while exercising) muscle group development and associated additional common injuries:

Focus: Core and Muscle Development with Emphasis on Injury Prevention and Functional Benefits

Neck

- Common Injuries: Whiplash/Strains Involves Sternocleidomastoid and Trapezius.
- Targeted Muscle Development: Sternocleidomastoid, Trapezius, Longus coli, Scalenes, Suboccipitals

Shoulders

- Common Injuries: Rotator Cuff Tear/Rupture
- Targeted Muscle Development: Supraspinatus, Infraspinatus, Subscapularis, Teres minor, Middle trapezius, Lower trapezius, Rhomboids, Serratus anterior, Deltoid

Arms

- Common Injuries: Bicep Tear
- Targeted Muscle Development: Biceps brachii, Triceps brachii, Brachialis

Elbows

• Common Injuries: Golfer's Elbow (Medial Epicondylitis), Tennis Elbow (Lateral Epicondylitis)

• Targeted Muscle Development: Wrist extensors, Wrist flexors

Hands and Wrists

- Common Injuries: Trigger Finger, Carpal Tunnel Syndrome
- Targeted Muscle Development: Flexor Carpi Radialis, Flexor Carpi Ulnaris, Flexor Digitorum Superficialis, Extensor Carpi Radialis Longus, Extensor Carpi, Radialis Brevis, Extensor Carpi Ulnaris, Extensor Digitorum, Flexor Digitorum Longus, Flexor Pollicis Longus

Back

- Common Injuries: Sprain/strain, degenerative disc, facet joint dysfunction, muscle spasms, osteoarthritis
- Targeted Muscle Development: Erector spinae, latissimus dorsi, multifidus, quadratus lumborum, abdominals

Abdomen

- Common Injuries: Abdominal Strain or Cramps, Rectus Diastasis
- **Targeted Muscle Development**: Core Muscles: Rectus abdominis, Transversus abdominis, External and Internal obliques

Chest

- Common Injuries: Chest Contusion or Pectoral Tear
- Targeted Muscle Development: Pectoralis major, Pectoralis minor

Hips and Pelvic Floor

- Common Injuries: Hip Contusion/Dislocation, Hip Impingement, Labral Tear
- Targeted Muscle Development: Gluteus maximus, Gluteus medius, Gluteus minimus, Iliopsoas, Tensor fasciae latae, Deep hip rotators, Hamstrings

Groin

- Common Injuries: Groin Strain
- Targeted Muscle Development: Adductor magnus, Gracilis, Adductor longus

Hamstrings

- Common Injuries: Hamstring Strain or Tear
- Targeted Muscle Development: Biceps femoris, Semitendinosus, Semimembranosus

Quadriceps

- Common Injuries: Quadriceps Strain or Tear
- Targeted Muscle Development: Rectus femoris, Vastus lateralis, Vastus medialis, Vastus intermedius

Knees

- Common Injuries: Runner's Knee (Patellofemoral Pain Syndrome)
- Targeted Muscle Development: Quadriceps, Hamstrings, Hip musculature

Calves

- Common Injuries: Calf Strain
- Targeted Muscle Development: Gastrocnemius, Soleus

Feet and Ankles

- Common Injuries: Plantar Fasciitis
- Targeted Muscle Development: Flexor digitorum longus, Quadratus plantae, Gastrocnemius

Connecting the dots via Komodo Dragon PSEP #1 curriculum

This outline includes the cognitive benefits associated with each muscle group, injury prevention, targeted development, accredited institutions, and relevant PSEP KD#1 exercises. Cognitive gains are tied to executive function, spatial awareness, focus, and coordination, supported by respected institutions where applicable.

Back

1. Common Injuries

- o **Injury Prevention**: Protects against injury to the spine
- o **Targeted Development**: Improves core stability and respiratory efficiency.
- o Cognitive Gain: Enhances focus and mental clarity under stress.
- o PSEP Exercises:
 - Physical (#2): Quad Stretch Step supports core control and breathing awareness.
 - Cognitive (#14): Fall Drill integrates core engagement with balance, enhancing mental focus.

2. Core Stability

- o **Injury Prevention**: Supports lumbar stability, reducing lower back strain.
- o **Targeted Development**: Strengthens core stabilizers, improving posture.
- o Cognitive Gain: Enhances balance, body awareness, and spatial judgment.
- o PSEP Exercises:
 - Physical (#5): High Kicks builds coordination and core engagement.
 - Cognitive (#7): Lunge Twist enhances coordination and decision-making through complex movement.

3. Postural Awareness

- o **Injury Prevention**: Reduces strain on the spine by promoting proper alignment.
- Targeted Development: Builds postural stability and muscle memory.
- o Cognitive Gain: Improves mindfulness and proprioception, aiding focus.
- o PSEP Exercises:
 - Physical (#6): 2-Legged Dog reinforces spinal alignment and strength.

• Cognitive (#1): Knee Hugs – cultivates focus through controlled stretching and alignment.

Abdomen

1. Common Injuries

- o **Injury Prevention**: Strengthens core, reducing risk of strains.
- o Cognitive Gain: Fosters resilience through mindful muscle engagement.
- O PSEP Exercises:
 - Physical (#24): Dragon Combo #4 builds abdominal endurance.
 - Cognitive (#9): Cross Crawl High Knees enhances motor processing and cognitive flexibility.

2. Targeted Muscle Development

- Muscle Focus: Rectus abdominis, Transverse abdominis, and obliques.
- o Cognitive Gain: Improves executive decision-making and stability.
- o PSEP Exercises:
 - **Physical (#8): Dekok Sweep** builds core stability and strength.
 - Cognitive (#7): Lunge Twist reinforces decision-making and focus.

Neck

1. Potential Injuries

- o Injury Prevention: Reduces strain on Sternocleidomastoid.
- o Cognitive Gain: Fosters body awareness and patience.
- o PSEP Exercises:
 - Physical (#16): Inside to Outside Crescent Kick builds neck and upper body coordination.
 - Cognitive (#14): Fall Drill improves resilience and spatial orientation.

2. Targeted Muscle Development

- **Muscle Focus**: Strengthens neck and upper trapezius. sternocleidomastoid, trapezius, longus coli, scalenes, suboccipitals
 - o Cognitive Gain: Supports focus and cognitive control.
 - O PSEP Exercises:

- Physical (#6): 2-Legged Dog promotes spinal alignment.
- Cognitive (#20): Ground Stepping #3 enhances control through grounded mindfulness.

Hips and Pelvic Floor

1. Common Injuries

- o **Injury Prevention**: Supports hip stability to prevent strain.
- o Cognitive Gain: Reinforces patience and awareness in movement.
- o PSEP Exercises:
 - Physical (#25): Sempok promotes hip flexibility.
 - Cognitive (#10): Dragon#1 integrates focus with multiple stances.

2. Targeted Muscle Development

- Muscle Focus: Hip and pelvic stability.
- o Cognitive Gain: Encourages focus and self-regulation in complex movement.
- o PSEP Exercises:
 - Physical (#12): Dragon#3 improves hip strength and control.
 - Cognitive (#18): Ground Stepping #1 enhances spatial awareness and reaction.

Groin

1. Common Injuries

- o **Injury Prevention**: Reduces the risk of Adductor strain.
- o Cognitive Gain: Supports mindfulness and attention to detail in flexibility training.
- o PSEP Exercises:
 - Physical (#3): Hip Out strengthens groin muscles and promotes focus.
 - Cognitive (#20): Ground Stepping #3 requires control and precision in mindful movement.

2. Targeted Muscle Development

- Muscle Focus: Adductor Magnus, gracilis, adductor longus.
- Cognitive Gain: Reinforces cognitive resilience through gradual muscle control.
- O PSEP Exercises:
 - Physical (#4): Hip In develops range of motion in the groin.

Cognitive (#22): Dragon Combo #2 – builds cognitive endurance and focus with complex combinations.

Hamstrings

1. Common Injuries

- o **Injury Prevention**: Decreases risk of strain on the hamstring group.
- o **Targeted Development**: Improves strength and flexibility.
- o Cognitive Gain: Sharpens coordination and concentration through sustained movement control.
- o PSEP Exercises:
 - Physical (#11): Dragon#2 side lunge, squat, and front sweep build hamstring strength.
 - Cognitive (#8): Dekok Sweep requires focus and agility to maintain form.

2. Targeted Muscle Development

- Muscle Focus: Biceps femoris, Semitendinosus, Semimembranosus.
- o Cognitive Gain: Enhances focus and awareness through controlled muscle engagement.
- o PSEP Exercises:
 - Physical (#10): Dragon#1 uses multiple stances to strengthen hamstrings and coordination.
 - Cognitive (#9): Cross Crawl High Knees promotes cognitive processing and coordination.

Quadriceps

1. Common Injuries

- o **Injury Prevention**: Strengthens the quads to avoid patellar tendinitis.
- o Cognitive Gain: Supports endurance under physical stress, reinforcing mental resilience.
- o PSEP Exercises:
 - Physical (#19): Ground Stepping #2 Requires controlled lunge while moving forward
 - Cognitive (#13): Dragon#4 requires concentration and stability through dynamic pushups and leg movement.

2. Targeted Muscle Development

- o Muscle Focus: Quadriceps group.
- o Cognitive Gain: Develops executive functioning, particularly decision-making and concentration.

o PSEP Exercises:

- Physical: (#20) Ground Steppin #3 requires controlled quad strength and mental engagement to stay off knee cap.
- Cognitive (#24): Dragon Combo #4 involves complex movements, fostering agility and focus.

Calves

1. Common Injuries

- o **Injury Prevention**: Strengthens calf muscles, reducing risk of strains, increasing ankle flexibility.
- o Cognitive Gain: Reinforces attention to lower-body mechanics and focus.
- o PSEP Exercises:
 - **Physical (#10): Dragon#1** combines lower-body movements, building calf strength.
 - Cognitive (#23): Dragon Combo #3 enhances executive function through footwork patterns.

2. Targeted Muscle Development

- Muscle Focus: Gastrocnemius and Soleus.
- Cognitive Gain: Supports sustained attention and awareness during lower-body exercises.
- o PSEP Exercises:
 - Physical (#17): Outside to Inside Crescent Kick improves balance and agility.
 - Cognitive (#19): Ground Stepping #2 requires mindfulness and coordination in grounded movements.

Upper Extremity

1. Common Injuries

- o **Injury Prevention**: Prevents strain in the Biceps brachii.
- o Cognitive Gain: Builds mental endurance and control.
- o PSEP Exercises:
 - Physical (#15): Wall Push Off increases shoulder and arm strength.
 - Cognitive (#21): Dragon Combo #1 combines strength and agility, reinforcing executive control.
 - Physical (#25): Dragon Push Up increases shoulder and arm strength.

2. Targeted Muscle Development

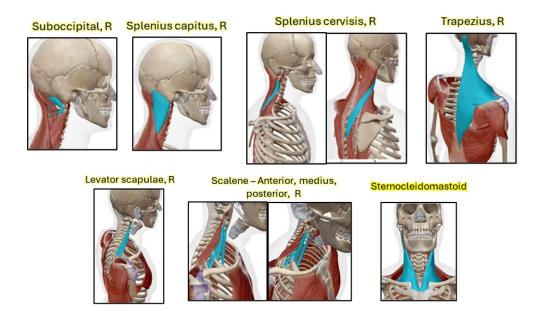
- o Muscle Focus: Biceps, Triceps, and Brachialis.
- o Cognitive Gain: Enhances coordination and multitasking capabilities.
- O PSEP Exercises:
 - Physical (#18): Ground Stepping #1 builds upper body strength.
 - Cognitive (#16): Inside to Outside Crescent Kick integrates focus and precision.

Photo references:

Each muscle group benefits from PSEP KD#1 exercises designed to enhance both physical conditioning and cognitive capabilities, contributing to a well-rounded development of mental resilience, spatial judgment, and flexibility in decision-making.

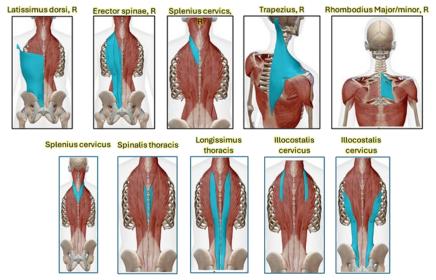
Neck

• Images: Neck anatomy highlighting the sternocleidomastoid and trapezius muscles.



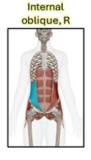
Back

Images: Diagram showing the core muscles (transversus abdominis, obliques, and pelvic floor) with highlighted regions for breathing technique focus points.



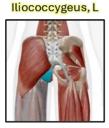


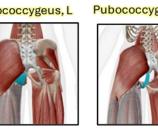




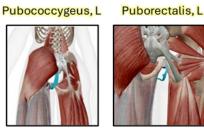


Transversus



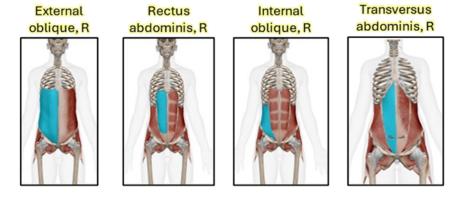


Levator ani



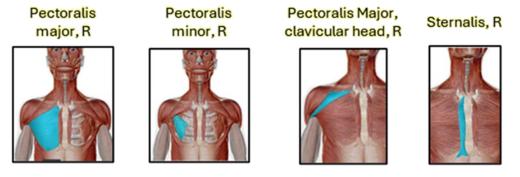
Abdomen

Images: Core muscle anatomy with a focus on the rectus abdominis, transversus abdominis, and obliques.



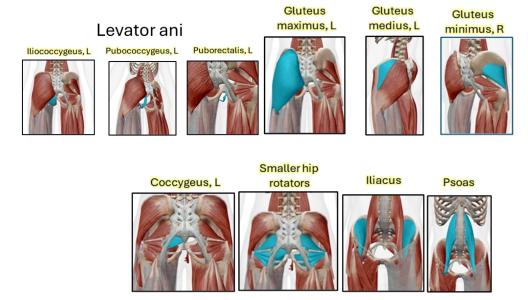
Chest

• Images: Diagram of chest muscles with the pectoralis major and minor highlighted.



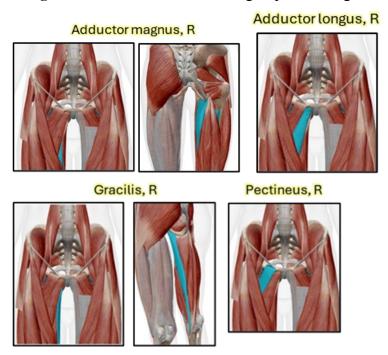
Hips and Pelvic Floor

• Images: Illustration of the hip muscles (gluteus maximus, medius, iliopsoas, and smaller hip rotators)



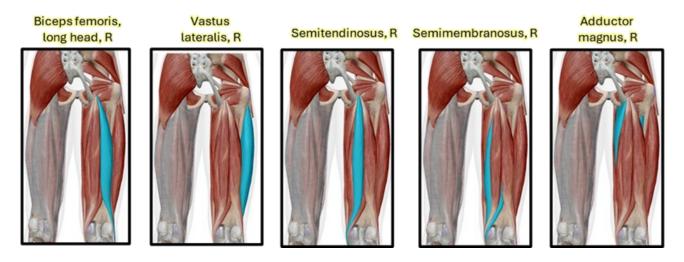
Groin

• Images: Illustration of the adductor group, including adductor longus and magnus.



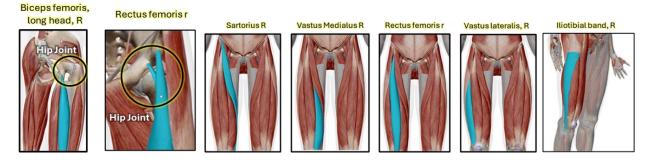
Hamstrings

• **Images:** Anatomical illustration of the hamstring muscles (biceps femoris, semitendinosus, semimembranosus).



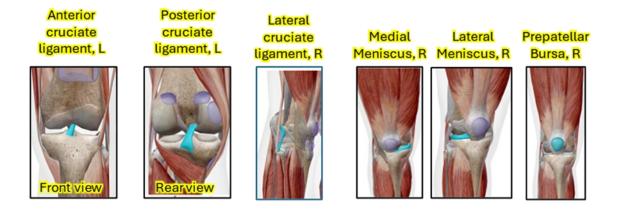
Quadriceps

• **Images:** A detailed view of the quadriceps group (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius) with an overlay to highlight the rectus femoris, illustrating its two-joint function and susceptibility to strain.



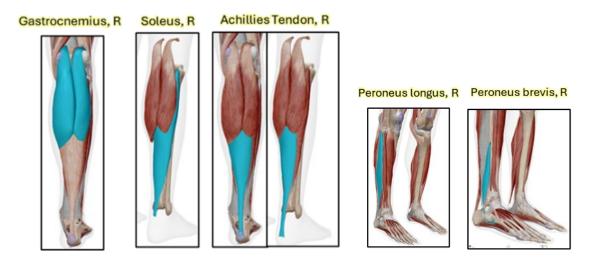
Knees

• **Images:** Illustration showing knee anatomy, highlighting the quadriceps group and meniscus. Included the PCL and LCL for a complete overview of knee stabilizers and potential injury sites.



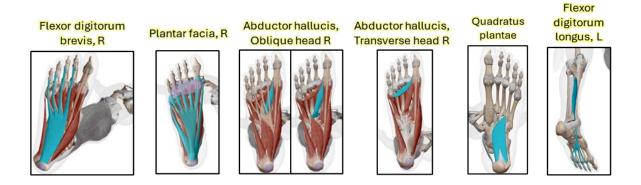
Calves

• Images: Image showing the gastrocnemius and soleus muscles, with tendons extending to the Achilles.



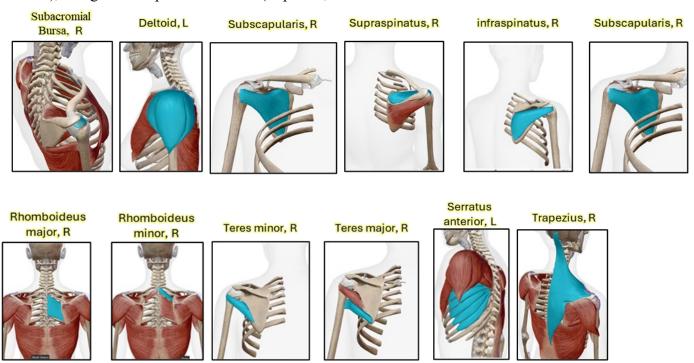
Feet and Ankles

• **Images Suggestion:** Anatomical layout of the plantar fascia, flexor digitorum longus, and associated foot muscles. Include markers for common injury zones, such as the plantar fascia and flexor tendons.



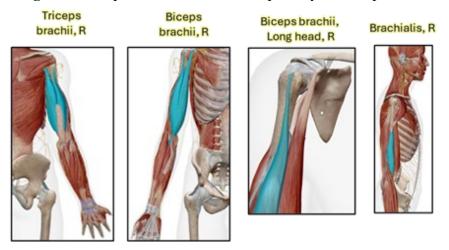
Shoulders

• Images: Detailed view of the rotator cuff muscles (supraspinatus, infraspinatus, subscapularis, and teres minor), along with scapular stabilizers (trapezius, rhomboids



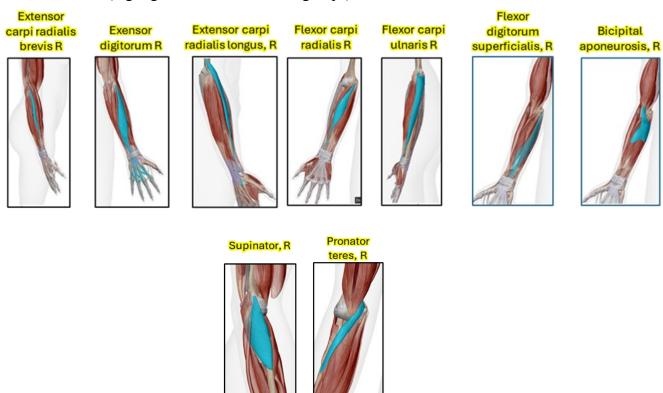
Arms

• Images: Close-up of the arm muscles, especially the biceps brachii, triceps brachii, and brachialis.



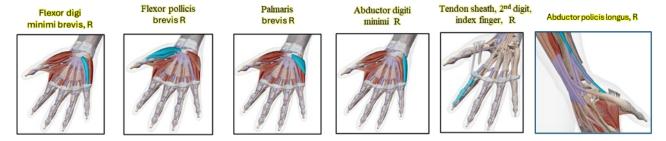
Elbows

• **Image Suggestion:** Elbow joint with targeted muscle development in common conditions, like golfer's and tennis elbow (highlight flexor and extensor groups).



Hands and Wrists

• **Image Suggestion:** Illustration of hand and wrist tendons, especially the flexor digitorum profundus and targeted muscle development in De Quervain's tenosynovitis.



Flexor digitorum superficialis, R

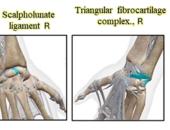








Flexor tendon



Accrediting Institutions:

- American Council on Exercise (ACE) Breathing, core strength development, arm muscle training, and rotator cuff exercises
- National Academy of Sports Medicine (NASM) Core stability, hip/pelvic floor strengthening, and calf development
- Gray Institute Postural training, core muscle development, and shoulder injury prevention
- National Strength and Conditioning Association (NSCA) Functional movement, core, chest, and neck training
- American College of Sports Medicine (ACSM) Hamstring, quadriceps, groin, chest, and knee stability
- American Physical Therapy Association (APTA) Quadriceps, hip, ankle, and neck strengthening
- International Association for Dance Medicine & Science (IADMS) Hamstring and groin injury prevention
- American Orthopaedic Society for Sports Medicine (AOSSM) Arm and elbow injury prevention
- International Federation of Sports Physical Therapy (IFSPT) Calf and foot injury recovery
- American Academy of Orthopaedic Surgeons (AAOS) Hand and wrist injuries
- Erickson KI, Leckie RL, Weinstein AM. Effects of physical activity on the hippocampus and memory in older adults. *Proceedings of the National Academy of Sciences*. 2011;108(7):3017-3022. This study highlights the role of aerobic exercise in enhancing hippocampal volume, which is closely tied to improved executive function in older adults. The findings demonstrate that regular exercise not only benefits physical health but also supports cognitive aging processes, particularly memory and task-switching abilities.
- Leckie RL, Weinstein AM, Hodzic JC, Erickson KI. **BDNF mediates improvements in executive function following a 1-year exercise intervention**. *Frontiers in Human Neuroscience*. 2014;8:985. This research explores how a year-long aerobic exercise regimen improved brain-derived neurotrophic factor (BDNF) levels and task-switching performance among sedentary older adults. The study emphasizes the mediating role of BDNF in the relationship between exercise and enhanced cognitive flexibility

Attribution by Name and Credentials:

Medical Professionals and Practitioners

Dr. Jai-Gurmkh K. Samtani, MD

Specialization: Family Medicine and Hospitalist

Dr. Samtani is a board-certified family physician with over 21 years of experience. He practices at Moses H. Cone Memorial Hospital in Greensboro, NC, where he is affiliated with Moses Cone Physician Services. His practice integrates clinical, behavioral, and biological sciences, focusing on comprehensive care for all age groups and genders. Dr. Samtani has expertise in managing hospitalized patients and supporting Medicare recipients with electronic health records integration.

Dr. Scott Sobel, DC

Specialization: Chiropractic care

Dr. Sobel practices in Owings Mills, MD, specializing in musculoskeletal care and general wellness. He is known for his work in managing spinal health and promoting general wellness through chiropractic adjustments.

Dr. Daniel Prasetya, Doctor of Oriental Medicine

Specialization: Oriental medicine and civil engineering

Dr. Prasetya is a practitioner of Oriental medicine and civil engineering from Indonesia. He is an heir to a royal family Pencak Silat system originating from Madura and Central Java, tracing his lineage to Sri Sultan Hamengkubuwono I (HBK1), the first Sultan of Yogyakarta (1717–1792). His expertise encompasses traditional martial arts, cultural preservation, and wellness (physical, mental, and spiritual).

Jennifer Thimgan, PT, DPT

Position: Owner, NoCo Foundations Physical Therapy, LLC

License: Colorado PTL.0012061

Jennifer is a licensed physical therapist focused on foundational physical therapy practices tailored to individual patient needs. She works to enhance physical function and recovery through a patient-centered approach in her private practice.

Education and Cultural Experts

Jacob Richter

Credentials: 30 years experienced traditional martial arts and healing techniques, Official Representative of the UNESCO intangible cultural heritage Pencak Silat for the American Contents (IPSF), Licensed educator (CDE), Executive Diploma in Political Science (ICI), Diploma in Cognitive Behavioral Therapy (CPD UK), Certified Trauma Informed Coach, Faces of Autism Certificate.

Jacob is a published author, advocating for executive function development, trauma-informed education, and community leadership. He has received the **Presidential Volunteer Service Award** for over 10,000 hours of service and is an active member of his local Chamber of Commerce. His roles emphasize martial arts as an educational tool for cultural preservation and physical and mental wellness.

Lori Garcia Sander, Education Specialist

Credentials: Over 30 years in education, including K-12 teaching, English as a Second Language programs, Director of English programs and various administrative roles

Lori has extensive experience as an educator and administrator in Weld and Larimer counties, teaching in a variety of settings and mentoring student teachers. Lori is also the elected representative for Colorado State House District 65 (2024) and an advocate for educational leadership and equity.

Marcus Kim, M.Ed. in Special Education

Specialization: Behavioral Specialist

Marcus brings over 20 years of expertise as a behavior specialist in both private and public-school settings, with a dedicated focus on supporting students with behavioral disorders, learning disabilities, and emotional challenges. He holds a Master's degree from Cambridge College.

Science and Research Experts.

Dr. Lee Becker, PhD

Field: Computer Science

Dr. Becker holds a PhD in Computer Science from the University of Colorado Boulder (CU Boulder). His expertise includes media analysis, communication strategies, and interpersonal communication, with a focus on how communication affects public understanding and societal change.

Specialized Roles

John Montenieri

Career: 35 years at the CDC **Degree:** Applied Sciences

John has had a distinguished career at the Centers for Disease Control and Prevention (CDC), specializing in public health. He also brings expertise in animal care as a veterinary technician, dog trainer, and is an accomplished martial artist.

Agenda with time lines

17-Week Program: PSEP Komodo Dragon #1

Total Hours: 130 (51 hours in-school + 76.5 hours homework + 2.5 hours review)
Each week includes 3 hours of in-school training and 4.5 hours of homework (practicing exercises and developing questions).

Weeks 1–2: Foundation and Breathing Techniques

- Focus: Breathing techniques, core stability, and postural awareness.
- In-School Training:
 - o Breathing mechanics and diaphragmatic control (e.g., Quad Stretch Step).
 - o Core stability drills (e.g., Lunge Twist).
 - o Postural alignment practices (e.g., 2-Legged Dog).
- Homework:
 - o Practice exercises for 4.5 hours/week (e.g., controlled stretches, core-focused drills).
 - o Develop questions regarding the impact of breathing and posture on core function.

Weeks 3-5: Injury Prevention and Targeted Muscle Development

- Focus: Neck, shoulders, and arms.
- In-School Training:
 - o Neck: Strengthening Sternocleidomastoid and Trapezius (e.g., Knee Hugs).
 - o Shoulders: Rotator cuff stabilization drills (e.g., High Kicks).
 - o Arms: Focused bicep and tricep development (e.g., Trigger Point Practice).
- Homework:
 - o Execute prescribed drills for each muscle group.
 - o Research and document how muscle development prevents injuries.

Weeks 6-8: Core, Back, and Abdomen

- **Focus:** Enhancing core stability and injury prevention for the back and abdomen.
- In-School Training:
 - o Core-focused functional movements (e.g., Cross Crawl High Knees).
 - o Back strengthening exercises (e.g., Fall Drill).
 - o Abdominal endurance-building routines (e.g., Dragon Combo #4).
- Homework:
 - o Perform exercises targeting core and back muscles.
 - o Prepare questions on injury prevention strategies for core areas.

Weeks 9-11: Lower Body and Balance Training

- Focus: Hamstrings, quadriceps, groin, and hips.
- In-School Training:
 - o Hamstring and groin injury prevention techniques (e.g., Single-Leg Balance Drills).
 - o Quadriceps strengthening exercises (e.g., Lunge Variations).
 - o Hip mobility and stabilization (e.g., Glute Bridges).
- Homework:
 - o Practice drills that improve lower-body strength and flexibility.
 - o Reflect on the role of balance in injury prevention.

Weeks 12-14: Joints and Functional Benefits

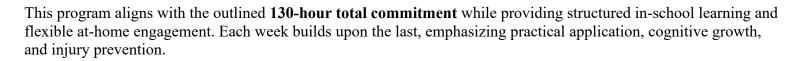
- **Focus:** Elbows, wrists, knees, and ankles.
- In-School Training:
 - o Knee stabilization drills (e.g., Runner's Stability Steps).
 - o Elbow and wrist injury prevention (e.g., Flexor/Extensor Activation).
 - o Ankle mobility and plantar fascia exercises (e.g., Tension-Release Steps).
- Homework:
 - o Practice injury-specific exercises.
 - o Create diagrams illustrating joint stabilization.

Weeks 15–16: Integrated Movements and Cognitive Focus

- **Focus:** Full-body coordination, proprioception, and mental resilience.
- In-School Training:
 - o Integration of all muscle groups through complex drills (e.g., Dragon Full-Body Circuit).
 - o Cognitive exercises to improve decision-making under stress (e.g., Reaction Time Kicks).
- Homework:
 - o Complete integrated movement routines.
 - o Journal experiences focusing on cognitive and physical alignment.

Week 17: Review and Assessment

- Focus: Program synthesis and skill evaluation.
- In-School Training:
 - o Demonstration of learned exercises (structured assessment).
 - o Group discussion and feedback on the program's cognitive and physical impact.
- Homework:
 - o Reflective writing on personal growth and future application of skills.



End agenda with time lines

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