[KD 1549]

Sub. Code : 3061

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO
PHYSICAL MEDICINE AND REHABILITATION

Time : Three hours　　　　　Maximum : 100 marks

Answer ALL questions.

1. Define blood pressure. Describe the mechanism of blood pressure regulation in human body. Explain the pathophysiological basis of various symptoms due to high blood pressure. (25)

2. Describe the anatomy of lumbo–sacral articulation. Discuss in detail the biomechanics of Low back pain and add a note on the management of postural Low back pain. (25)

3. Write a short note on : (5 × 10 = 50)

(a) Motor unit

(b) Anterior cruciate ligament

(c) Chromosome

(d) Fibrillation potential

(e) Synovial fluid.

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[KE 1549]　　　　　　　Sub. Code : 3061

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO
PHYSICAL MEDICINE AND REHABILITATION

Time : Three hours　　　　　　Maximum : 100 marks

Answer ALL questions.

1.　Describe the anatomy and functions of human hand.　　　　　　　　　　　　　　　(25)

2.　How is efficiency of respiratory function measured? Discuss the principles of excercise therapy in COPD.　　　　　　　　　　　(25)

3.　Write a short note on :　　　　(5 × 10 = 50)

(a) Supraspinatus muscle

(b) Cardiac reserve

(c) Arches of foot

(d) Micturition reflex

(e) Intervertebral disc.

[KG 1549]   **Sub. Code : 3061**

DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

1. Describe Anatomy of typical lumbar vertebra and intervertebral disc. What are the biochemical and bio mechanical changes occur due to degenerative process? (25)

2. Write an essay on calcium and phosphorus metabolism. Explain the role of vitamin–D on calcium and phosphorus metabolism. (25)

3. Write a short note on : $(5 \times 10 = 50)$

    (a) Circle of Willis.

    (b) Faradic and galvanic current.

    (c) Types of levers in human motion.

    (d) 'Q' angle.

    (e) Linguistics in speech therapy.

[KH 1549]   **Sub. Code : 3061**

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO
PHYSICAL MEDICINE AND REHABILITATION

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

1.   Describe the blood supply of spinal cord both
longitudinal and segmental, water shed area, applied
anatomy and its relevance to clinical situation.   (25)

2.   Describe Ischemic pneumbra, its implications,
compensatory adaptive mechanism through motor
recovery in stroke.   (25)

3.   Write short notes on : $(5 \times 10 = 50)$

   (a)   Triradiate cartilage

   (b)   Proteoglycon

   (c)   Antioxidants

   (d)   Chondroitin sulphate

   (e)   Endorphins.

[KJ 1549]   **Sub. Code : 3061**

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO
PHYSICAL MEDICINE AND REHABILITATION

Time   : Three hours   Maximum : 100 marks

Theory : Two hours and   Theory :   80 marks
         forty minutes

M.C.Q. : Twenty minutes   M.C.Q. :   20 marks

M.C.Q. must be answered **SEPARATELY** on the
Answer Sheet provided as per instruction given on
the first page of M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I.   Essay Questions : $(2 \times 15 = 30)$

1.   Describe the anatomy of the urinary bladder and
its nerve supply. Discuss the physiology of micturition.

2.   Describe the pathway of pain and discuss the
effects of hemisection of the spinal cord.

II.   Short notes : $(10 \times 5 = 50)$

(1)   Disease modifying anti rheumatic drugs.

(2)   Dystrophin.

(3)   Vitamin B12.

(4)   Heterotopic ossification.

(5)   Hyperkalaemia.

(6)   Vital capacity.

(7)   Quinolones.

(8)   Myaesthenia Gravis.

(9)   Thyroid stimulation hormone.

(10) Action potential.

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2   **[KJ 1549]**

[KL 1549]　　　　　　　**Sub. Code : 3061**

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

(New Regulations)

Part I

Paper I — BASIC SCIENCES IN RELATION TO
PHYSICAL MEDICINE AND REHABILITATION

Time : Three hours　　　　　Maximum : 100 marks

Theory : Two hours and　　　　Theory : 80 marks

　　forty minutes

M.C.Q. : Twenty minutes　　　M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I.　Essay :　　　　　　　　$(2 \times 15 = 30)$

(1)　The Anatomy of the human genome, and briefly discus the types, common presentation and investigations of genetic disease.

(2)　Briefly describe cortical blood supply of the brain and discuss the pathophysiological classification of stroke.

II.　Short notes :　　　　　　　$(10 \times 5 = 50)$

(a)　Neurophysiology of micturition.

(b)　Autonomic hyperreflexia (Dysreflexia).

(c)　Deep venous thrombosis.

(d)　Heterotopic Ossification

(e)　Phonophoresis

(f)　Dysarthria

(g)　Obesity.

(h)　Local corticosteroid therapy.

(i)　Pharmacological intervention in treatment of spasticity

(j)　Calcitonin.

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[KO 1549]   Sub. Code : 3061

DIPLOMA IN PHYSICAL MEDICINE AND
REHABILITATION EXAMINATION.

BASIC SCIENCES IN RELATION TO PHYSICAL
MEDICINE AND REHABILITATION

Time : Three hours   Maximum : 100 marks

Theory : Two hours and   Theory : 80 marks
     forty minutes

M.C.Q. : Twenty minutes   M.C.Q. : 20 marks

Draw suitable diagrams wherever necessary.

Answer ALL questions.

I.   Essay :   (2 × 15 = 30)

(1)   Describe the formation of Brachial plexes. Mention the root value, course and branches of radial nerve. Add a note on Posterior Interosseous Nerve (PIN) lesion.

(2)   Describe the morphology of skeletal muscle fibre and the mechanism of skeletal muscle contraction. Add a note on the effect of Botulinium toxin on the Neuro Muscular Junction.

II.   Short notes :   (10 × 5 = 50)

(a)   Arches of foot

(b)   Rotator cuff

(c)   Blood supply to brain

(d)   Inter vertebral disc

(e)   Internal capsule of brain

(f)   Classification of nerve fibre

(g)   Normal micturition

(h)   Visual pathway lesions

(i)   Effects of exercise on the cardio vascular system

(j)   Pulmonary Function Tests (PFT).

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[KQ 1555]   Sub. Code : 3061

DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION EXAMINATION.

BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Common to

(Candidates admitted from 1993–94 onwards)

and

(Candidates admitted from 2004–2005 onwards)

Time : Three hours   Maximum : 100 marks

Theory : Two hours and forty minutes   Theory : 80 marks

M.C.Q. : Twenty minutes   M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I.   Essay questions :

(1) (a) Describe the anatomy of knee joint with labelled diagrams.

(b) Enumerate the various bursae situated around the knee joint.

(c) Add a note on the unlocking mechanism of the knee joint.   (20)

(2) Describe the physiology of contraction of skeletal muscle.   (15)

(3) Kreb's cycle and its significance in sports physiology.   (15)

II.   Short notes :   (6 × 5 = 30)

(a) Strength-duration curve

(b) Visual pathway

(c) Interferential therapy

(d) Pain relieving drugs in PMR practice

(e) Pyramidal tract

(f) Detection of acetone in urine.

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MARCH 2008

[KS 1555]   **Sub. Code : 3068**

DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION
EXAMINATION.

Paper I — BASIC SCIENCES IN RELATION TO PHYSICAL
MEDICINE AND REHABILITATION

(Common to all Regulation)

Q.P. Code : 343068

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

I.   Essay on : $(2 \times 20 = 40)$

1.   Describe the muscles controlling movements of fingers and thumb. Outline the deformities and functional impairments in paralysis of intrinsic muscles of hand.   (20)

2.   Define pain. Describe the pain pathway. Add a note on theories of pain with their therapeutic implications.   (20)

II.   Write short notes on : $(10 \times 6 = 60)$

1.   Intervertebral disc.

2.   Micturition reflex.

3.   Arches of foot.

4.   Ligaments of knee joint.

5.   Fatigue.

6.   Rheobase.

7.   Denial.

8.   Head of femur.

9.   Circle of Willis.

10.   TENS.

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[KU 1555]   **Sub. Code: 3068**

DIPLOMA IN PHYSICAL MEDICINE AND REHABILTATION EXAMINATION.

Paper I – BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

(Common to all Regulations)

Q.P. Code : 343068

Time : Three hours   **Maximum : 100 marks**

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : (2 X 20 = 40)

1. Describe the harvesian system in bone, with a neat, labelled line diagram. What are the differences between cortical bone and cancellous bone? Define osteoporosis. Enumerate the investigations required to diagnose severity of osteoporosis. Briefly outline the treatment options.

2. Define a spinal segment. Describe the spinal segments in the cervical, thoracic, lumbar and sacral spinal cord and the key muscle or specific sensory area to test each spinal segment. Enumerate the clinical differences in complete and incomplete spinal cord injury.

II. Write short notes on : (10 X 6 = 60)

1. Thrombocytopenia.
2. Hepatitis B surface antigen.
3. Renal rickets.
4. Charcot foot.
5. Short wave diathermy.
6. Therapentic uses of cold.
7. Clinical features of hypothyroidism.
8. CSF picture in Bacterial meningitis.
9. Keloid.
10. Trimethoprim – sulphamethoxazole.

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION EXAMINATION

BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

(Common to all Regulations)

Q.P. Code : 343068

Time : Three hours   Maximum : 100 marks

Draw suitable diagram wherever necessary

Answer ALL questions

I. Essay questions :   **(2 x 20 = 40)**

1. Describe the muscles of the back and the movements caused by them. Enumerate the structures encountered by the surgeon during a laminectomy. List the potential pain - causing structures in the back.

2. Describe the gross anatomy of the cerebellum, with a line diagram. List its important afferent and efferent connections. Enumerate the functions of the cerebellum. Name some clinical tests of cerebellar function.

II. Write short notes on :   **(10 x 6 = 60)**

1. Nutritional rickets.

2. Tests for anemia.

3. Triple deformity of the knee joint.

4. Ultrasound (therapeutic).

5. Therapeutic uses of heat.

6. Clinical features of hyperthyroidism.

7. CSF picture in tuberculous meningitis.

8. Stages of wound healing.

9. Crystalline penicillin.

10. Monoclonal antibodies.

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[KX 1555]   **Sub. Code: 3068**

DIPLOMA IN PHYSICAL MEDICINE AND REHABILTATION (D.PHYS.MED.) EXAMINATION.

Part I / Paper I - BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

(Common to all Regulations)

Q.P. Code : 343068

Time : Three hours   Maximum : 100 marks
Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions :   **(2 X 20 = 40)**

1. Describe the anatomy of the knee joint. Include a note on the applied anatomy of the cruciate ligaments.

2. What is the functional vertebral unit? Discuss the various parts of the intervertebral disc, and discuss the various types of inter-vertebral disc prolapses. What are the radiculopathies caused by lumbar disc prolapse?

II. Write short notes on :   **(10 X 6 = 60)**

1. Patho-physiology of stroke.

2. Classification of peripheral nerve injuries.

3. Determinants of gait.

4. Isometric, isokinetic and isotonic exercises.

5. Cervical spondylosis.

6. Types of hand prehension.

7. Community based Rehabilitation.

8. Rotator cuff muscles.

9. Hyperkalemia.

10. Complications of diabetes.

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APRIL 2011

[KY 1555]   **Sub. Code: 3068**

DIPLOMA IN PHYSICAL MEDICINE AND REHABILTATION
(D.PHYS.MED.) EXAMINATION

BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE
AND REHABILITATION
Q.P. Code : 343068

Time : 3 hours   **Maximum : 100 marks**
(180 Min)

Answer ALL questions in the same order.

I. Elaborate on :	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Describe the anatomy of the spinal cord. Add a note on the effect of injury at various levels in the spinal cord.	11	35	15
2. Describe the bronchopulmonary segments with suitable diagrams. Add a note on the pulmonary function tests.	11	35	15

II. Write notes on :			
1. Hyperparathyroidism.	4	10	7
2. PWD Act.	4	10	7
3. Principle and uses of therapeutic Ultrasound.	4	10	7
4. Pathology in Rheumatoid Arthritis.	4	10	7
5. Rotator cuff.	4	10	7
6. Osteoporosis.	4	10	7
7. Drugs used in Parkinsonism.	4	10	7
8. BERA.	4	10	7
9. Dejerine-Klumpke syndrome.	4	10	7
10. Hemiplegic gait.	4	10	7

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILTATION (D.PHYS.MED.) EXAMINATION

BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P. Code : 343068

Time : 3 hours   **Maximum : 100 marks**
     (180 Min)

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Describe the anatomy and function of human foot.	16	35	15
2. What are different speech areas and common varieties of aphasia.	16	35	15

II. Write notes on :

1. Thyroid function tests and its clinical significance.	4	10	7
2. Mechanism of action of drugs for spasticity.	4	10	7
3. Common skeletal deformities in Rickets.	4	10	7
4. Biomechanics of frozen shoulder.	4	10	7
5. Evaluation of semilunar cartilage injury.	4	10	7
6. Pathway of pain and its perception.	4	10	7
7. Afferent nerve supply of urinary bladder.	4	10	7
8. Clinical features and drug therapy for motor neuron disease.	4	10	7
9. Indications and mechanism of action of methotrexate.	4	10	7
10. Parameters of clinical relevance in uroflowmetry studies.	4	10	7

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P. Code: 343068

Time: Three Hours   **Maximum: 100 marks**

I. Elaborate on: **(2X15=30)**

1. Explain the vascular supply of the spinal cord. Write about the American Spinal Cord Injury Association. Add a note on the classification, pathophysiology and recovery in spinal cord injury.

2. Mention the different types of exercise training programmes and the physiological basis for improvement in strength and endurance.

II. Write notes on: **(10X7=70)**

1. Vitamin D Synthesis
2. Rotator cuff muscles
3. Fluoxetine
4. Effect of physical training on cardiac output
5. Motor unit action potential
6. Energy expenditure during ambulation
7. Thoracic outlet syndrome
8. Trigeminal nerve
9. Executive functions of the brain
10. Neurogenic bladder

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P. Code: 343068

Time: Three Hours   **Maximum: 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 15 = 30)**

1. Structure and Function of skeletal muscle in detail.
   Explain length tension relationship in skeletal muscle.

2. Describe various components in the structure, innervation and physiological functions of the urinary bladder.

II. Write notes on: **(10 x 7 = 70)**

1. Benzodiazepines.

2. Course of Facial nerve and possible lesions in its pathway.

3. Carpal tunnel.

4. Atherosclerosis.

5. Passive insufficiency of tendons.

6. Spasticity.

7. Aspirin.

8. Fibrillation potential.

9. Renal function tests.

10. Stages in wound healing.

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P.Code: 343068

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: (2 x 15 = 30)

1. Discuss the CSF formation and its flow. Mention the possible effects of hydrocephalus.

2. Describe the structure of muscle fibres and mention the sources of energy for muscle contraction.

II. Write notes on: (10 x 7 = 70)

1. Cystometrogram.

2. Isometric muscle contraction.

3. Neuromuscular junction.

4. Trendelenberg gait.

5. Methotrexate.

6. Methicillin Resistant Staphylococcus Aureus.

7. Erb's palsy.

8. Autonomic neuropathy.

9. Different scales of evaluation of disability.

10. Cervical rib.

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**DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION
(D.PHYS.MED.) EXAMINATION**

**APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL
MEDICINE AND REHABILITATION**

Q.P.Code: 343068

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the nerve supply of urinary bladder and pathophysiology of neuropathic bladder following spinal cord injury.

2. Classify joints and describe a typical synovial joint.

II. Write notes on: **(10 x 7 = 70)**

1. Saturday night palsy.
2. Lymphedema.
3. Anticonvulsant.
4. Screw home movement of knee joint.
5. CPK (Creatinine phosphokinase).
6. Action potential.
7. Types of muscle fibres.
8. Calcitonin in osteoporosis.
9. Anaerobic exercises.
10. Bronchopulmonary segments.

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P.Code: 343068

Time: Three Hours   **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe Bone structure and metabolism. Discuss pathophysiology and management of osteoporosis.

2. Explain about the Structure of vascular system. Discuss complications and management of peripheral vascular disease.

II. Write notes on: **(10 x 7 = 70)**

1. Arches of foot.

2. Quadratus lumborum muscle.

3. Circle of Willis.

4. Disease-modifying antirheumatic drugs.

5. Anterior horn cell.

6. Aquaporins.

7. Generalised tonic clonic seizures.

8. Klebsiella pneumoniae.

9. Vitamin B_{12}.

10. Serotonin.

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P. Code: 343068

Time: Three Hours   **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the normal gait and mention common gait deviations.

2. Discuss the blood supply of brain.

II. Write notes on: **(10 x 7 = 70)**

1. Rotator cuff.
2. Wallerian degeneration.
3. Phases of swallowing.
4. Botulinum toxin.
5. Fibrillation potential.
6. Osteomalacia.
7. Broca's aphasia.
8. Drugs used in spasticity.
9. Metabolic effects of Insulin.
10. Ataxia.

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**DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION
(D.PHYS.MED.) EXAMINATION**

**APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL
MEDICINE AND REHABILITATION**

Q.P. Code: 343068

Time: Three Hours   Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Metabolic dysregulation associated with diabetes mellitus. Discuss on management and rehabilitation of lower extremity complications of diabetes mellitus.

2. Functioning components of respiratory system. Discuss on volume and flow related mechanical and functional properties.

II. Write notes on: **(10 x 7 = 70)**

1. Cardiac muscle.

2. Detrusor muscle.

3. Radial nerve in relation to spiral groove.

4. Conus medullaris.

5. Bursitis.

6. Etiopathogenesis of Ankylosing spondylitis.

7. Spasticity and rigidity.

8. Pulmonary embolism.

9. Vastus Medialis Obliquus.

10. Split thickness skin graft.

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DIPLOMA IN PHYSICAL MEDICINE AND REHABILITATION (D.PHYS.MED.) EXAMINATION

APPLIED BASIC SCIENCES IN RELATION TO PHYSICAL MEDICINE AND REHABILITATION

Q.P. Code: 343068

Time: Three Hours   Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Draw the diagram of brachial plexus and enumerate the branches and muscles supplied. Describe the various types of brachial plexus injuries, clinical presentations, investigations and outline the management guidelines.

2. Draw the cross section anatomy of the knee and discuss clinical presentation, assessment and management of the internal derangements of knee

II. Write notes on: **(10 x 7 = 70)**

1. Arches of foot
2. Coronary circulation
3. Gait determinants
4. Motor unit recruitment
5. Antiplatelet agents
6. Selective Cox 2 Inhibitors
7. ATP
8. Herpes Zoster
9. Anaerobic threshold
10. Wound healing

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