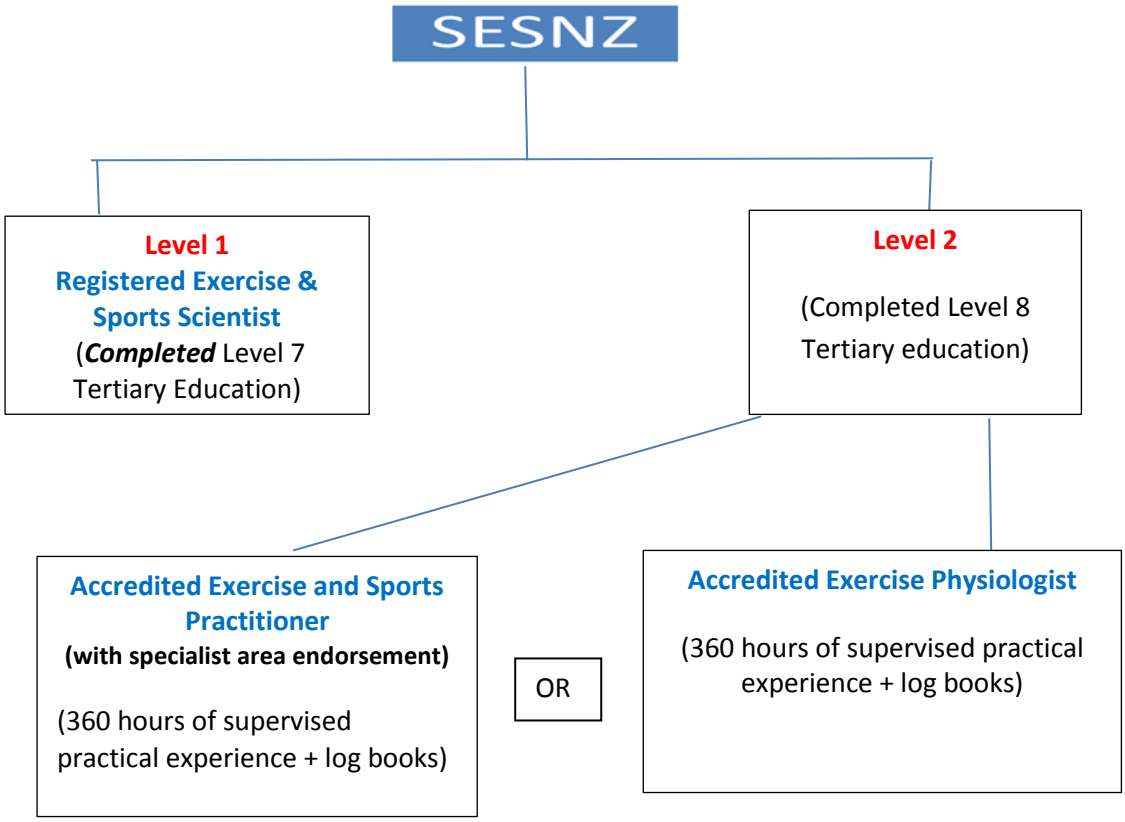
ACCREDITATION

CRITERIA AND COMPETENCIES

INTRODUCTION

Sport and Exercise Science New Zealand (SESNZ) has developed an accreditation and registration system for professionals working within the field of sport and exercise science. This system enables professionals to be recognised for their expertise by those outside this field, to ensure appropriate levels of professionalism and safety for the public and align our field with other similar professions.



APPLICATION PROCESS

How do I apply for Accreditation and Registration?

Before you can apply to become a Level 1 Registered Exercise and Sport Scientist or a Level 2 Accredited Exercise and Sport Science Practitioner or Accredited Exercise Physiologist, you should first become a member of Sport and Exercise Science New Zealand (SESNZ). The cost of this is $120 per year for Full Membership.

The forms are downloadable from the accreditation page of the website.

- Initial accreditation and assessment fee: **$300**
- Biennial accreditation renewal fee: **$50**

Applicants will complete the required application forms and provide all evidence required along with payment to SESNZ.

Verified evidence required includes, but not limited to:

- ✓ Copy of academic transcripts
- ✓ Appropriately logged/recorded hours of experience with accompanying support from a reputable source, e.g., coach, manager, supervisor etc
- ✓ Case-studies or examples of work as required for the discipline
- ✓ Other appropriate and relevant documentation as required, e.g., course attendance certificates
- ✓ Membership/accreditation with other bodies, e.g., ESSA, BASES, etc

EVIDENCE TO BE SUPPLIED FOR LEVEL 1 ACCREDITATION

- Current First Aid Certificate
- Copy of academic transcripts

EVIDENCE TO BE SUPPLIED FOR LEVEL 2 ACCREDITATION

- Current First Aid and CPR Certificate
- Copy of academic transcripts
- Log Book which clearly identify the requisite logged/recorded hours of experience with accompanying support from a reputable source should clearly identify the requisite 360 hours of practical experience at level 8.
- 3 case-studies. Case Studies must be of clients you have personally worked with and have an intimate knowledge and experience of their condition(s) and subsequent exercise therapy. Each case study must describe a different condition i.e., not all cardiovascular, or situation.

The case study reports must include the following:

- Brief introduction that includes relevant background information such as client history and the purpose of the assessment

- The method including statements which demonstrates you understand the equipment involved in the assessment (e.g. strain-gauge force plate vs. piezoelectric force plate) and any limitations of the assessment (e.g. accuracy, reliability), or
- The methods used in the intervention/s including statements that demonstrates that you understand any particular methods of assessment used (e.g., psychometric testing, performance profiling etc.) and any limitations of the assessment (e.g. validity or reliability).
- The client reports – video, written. Supplementary information can be provided on any oral information provided. Include details of any referrals.

Where possible, all identifying features of the client should be removed or masked in the report. Written client consent is required prior to submitting any visual material where the identity of the client cannot be protected. Consent should be limited to the purpose of obtaining your accreditation with SESNZ. Please provide a copy of the client's consent.

APPLICATION REVIEW

An independent reviewer will consider the application and advise whether the application meets the SESNZ accreditation requirements. Successful applicants will be issued with a 2-year SESNZ Practising Certificate which is valid until 30 June. Practising Certificate renewal is conditional on completing the SESNZ Continuing Competency Credits (CCC) scheme.

If an application is unsuccessful, the applicant will be notified and advised of the shortcomings and requirements needed to be successful. If these requirements are minimal no extra fee will be charged if supplied within the specified period. If however, the application requires a full review and new application, the full accreditation fee will be payable.

GRANDFATHERING PATHWAY

This is relevant to applicants who have graduated before 2016. Under the Grandfathering pathway applicants must provide evidence of full time equivalent (FTE) practice in direct servicing or research as defined by SESNZ.

CORE COMPETENCIES

The core competencies have been identified as those inherent to all levels of SESNZ accreditations.

1. COMMUNICATION

A practitioner effectively communicates in English with a wide range of people in all situations, both verbally and in writing.

- Adjusts communication style to suit the needs of the audience
- Communicates key points clearly and concisely

- Presents ideas in a logical sequence
- Communicates without using inappropriate jargon or phrases
- Demonstrates understanding of cultural differences regarding communication
- Demonstrates respect for all cultures and cultural practices in all situations. Presents complex ideas and concepts effectively

2. PROFESSIONAL CONDUCT

Open, honest and consistent in behaviour and can be relied upon. They generate confidence in others through their professional and ethical behaviour.

- Displays ethical and professional behaviour in all situations
- Demonstrates respect for all cultures and cultural practices in all situations
- Demonstrates openness and honesty when dealing with issues, day to day tasks and people
- Applies consistent standards that are fair and objective to all situations
- Does not compromise own standards, despite pressures
- Understands and complies with the SESNZ Code of Ethics
- Understands their personal ability, knowledge and competency limitations, and recognises when to refer a client on, and to whom.

3. **PROFESSIONAL DEVELOPMENT**

- Actively pursues professional development
- Regularly attends educational and professional development opportunities
- Reflect on professional development opportunities and apply or integrate (when appropriate) in professional practice

4. **RELATIONSHIP BUILDING**

Building and maintaining positive working relationships and networks useful to achieving the organisation's objectives.

- Able to work as part of a multidisciplinary team for improving either health or sport performance for the client.
- Builds and maintains appropriate productive relationships or networks of contact
- Builds and sustains appropriate positive and productive working relationships
- Maintains an extensive network of technical/professional contacts/staff to keep abreast of latest ideas
- Consults widely to obtain several perspectives

5. CRITICAL EVALUATION

An applicant is able to identify and analyse issues and problems, consider alternatives, make sound decisions and commit to a course of action.

- Checks the quality, validity and relevance of information sought - Identifies issues, relationships and/or trends amongst information
- Interprets and/or reorganises information and looks for alternative solutions to the problems
- Researches issues thoroughly using a suitable methodology

- Identifies and minimises significant risks associated with decisions
- Follows up on decisions to ensure they have been effective

LEVEL 1 REGISTERED EXERCISE AND SPORTS SCIENTIST (RESS)

SCOPE OF PRACTICE

Registered Exercise and Sports Science Scientists (RESS) may be either generalists, working across the breadth of biomedical and psychosocial sciences, or specialist sports science scientists, who would predominantly work within one or more specific discipline areas relevant to sports science and sports performance. The work undertaken by the Exercise and Sports Scientist must be commensurate with, and limited by, their academic training, expertise and competencies.

CORE CRITERIA

To gain a Level 1 Exercise and Sports Science accreditation, an individual must:

- be a graduate with a minimum Level 7 qualification, that leads to the award of a Bachelor degree from a higher education provider.
- Be a FULL member of SESNZ (or join as a Full member at the time of application).

A Level 1 accredited practitioner specialises in applying

• Scientific principles and techniques to assist coaches and athletes to improve their performance, either at an individual level or within the context of a team environment.

•. They may also apply their knowledge and skills to relevant projects within the sports industry, for corporate bodies or in the community.

At all times, the accredited practitioner makes the wellbeing of the athlete, the team and other service users, their primary concern by providing the utmost duty of care and never recommending the use of any substance or practice that might knowingly cause harm to the service user.

Registered Exercise and Sports Scientists are qualified specialists who are associated with:

- the provision of sports science services to athletes;
- the training of potential sports scientists; and/or
- the conduct of research relating to sport

Table 1 outlines the discipline areas that Registered Exercise and Sports Science practitioners typically work within and the work that they would generally undertake within each discipline area.

Table 1: Discipline areas of Exercise and Sports Science

Exercise physiology	1. Use pre-activity screening of a healthy population to determine the risk of activity • competency in pre-activity screening/evaluation for musculoskeletal, metabolic and circulo-respiratory risks. • an ability to screen for appropriate cardio-pulmonary responses to sub-maximal and maximal physical activity. 2. Select, reliably conduct/implement and correctly interpret tests (listed below) to determine function and performance on the strength-endurance continuum. Tests include direct and indirect measurements of: • anthropometry (e.g. BMI, BIA, girth, skinfolds) • strength (e.g. dynamometry, 1RM testing) • power (e.g. vertical power, horizontal power, sprinting) • anaerobic capacity (e.g. Wingate test, repeated sprints) • aerobic capacity (e.g. maximal and submaximal testing) economy of exercise (e.g. speed-VO_2 testing, lactate profiling) • cardiopulmonary function (e.g. basic ECG, HR, BP, lung function) • flexibility (e.g. goniometry) • common variables in body fluids (e.g. blood, urine, 3. saliva). 3. A practitioner possesses the knowledge and understanding of: • Physiological, mechanical, environmental determinants underpinning physical activity and assessment in the area of exercise physiology (including, but not limited to, thermoregulation, circadian rhythms, altitude, ergogenic aids, muscular function, endocrinology, fluid homeostasis and metabolism). 4. Laboratory health and safety regulations, and adherence to hygiene regulations, body fluid/tissue safe sampling and handling, and emergency procedures. and ability to: 5. Complete basic maintenance and calibration procedures of common equipment (ergs, wet and dry lactate analysers, metabolic carts). 6. Work and consult with other specialists in associated professions e.g. medical profession.
Sports Biomechanics & Performance Analysis	The practitioner possesses an ability to: 1. Reliably perform valid (2D and 3D) movement analysis testing. Showing appropriate knowledge of: • Marker sets (e.g., Helen Hayes, Cleveland clinic, rigid, cluster) • Motion capture techniques (e.g., On-line systems, Dv cameras, Active sensors)

	• Calibration techniques (e.g., volume, plane, anatomical) • Direct force measures (e.g., force plate, F-scan, transducers) 2. Select, conduct and interpret specific biomechanical data analysis techniques, including: • Kinematics (e.g., linear and angular displacement and the first and second time derivatives of). • Kinetics both direct and indirect (e.g., inverse dynamics 2D or 3D). • Qualitative analysis including deterministic modelling • Performance analysis (e.g., notational analysis) 3. Accurately interpret Biomechanical assessments and monitor outcomes in the short or long-term; 4. Perform *laboratory-based* and *field-based* tests where appropriate. 5. Communicate findings in an appropriate manor to stakeholders (e.g., written reports, video analysis, silicon coach) ; 6. Palpate and locate at least 10 standard bony landmarks used in Biomechanics motion analysis (e.g. trochanterion, distal clavicle); 7. Qualitatively assess the component demands of human movement (including a deterministic model) by providing a case-study report that addresses an exercise or sport-based problem; 8. Apply kinematics (time series two dimensional; time series multiple plane two dimensional and/or three dimensional) by presenting a case-study report that addresses an exercise or sport-based problem; 9. Apply kinetic (quantitative) assessment of human movement (including a free body diagram and deterministic model) by presenting a case-study report which addresses an exercise or sport-based problem **Knowledge** A practitioner possesses a thorough understanding and knowledge of: 10. The anatomical, mechanical, environmental determinants underpinning activity and assessment in the area of biomechanics (including, but not limited to, functional anatomy, anthropometry, movement analysis, mathematics, kinematics, kinetics, performance analysis, task analysis, needs assessment)
Musculoskeletal Exercise Rehabilitation	A practitioner has the knowledge and understanding of: 1. Muscle physiology and pathophysiology including common musculoskeletal conditions limiting or otherwise influencing the prescription of physical activity or symptom management; 2. The interaction of different co-morbid conditions in the development of a rehabilitation plan; 3. Physical exercise/physical activity and the various modalities such as open- and closed-kinetic chain exercise, isokinetics, plyometrics, hydrotherapy and flexibility training; 4. Advanced knowledge of functional assessment test protocols. **Evaluation** A practitioner has the ability to**:**

	5. Competently evaluate exercise intervention / training regimens for musculoskeletal clients; design rehabilitation programmes & achieve the goals of physical rehabilitation; **6.** Record relevant historical information to determine non-modifiable and modifiable factors of the the individual's injury; **Safety and Prevention** A practitioner has the knowledge and understanding of: 7. Monitor symptoms (i.e. colour, swelling, deformity, heat, and pain) and associated data during the rehabilitation of an injury or condition; 8. Managing cardiopulmonary and other types of emergencies that may be encountered with clients undergoing rehabilitation; 9. Appropriate risk stratification principles as these apply to patient assessment procedures, exercise supervision and monitoring and referring to appropriate Health Professionals where necessary; 10. Safety principles as related to weight training techniques (e.g. spotting, dangerous lifts, etc.). **Exercise Programming and Prescription** A practitioner has the ability to**:** 11. Interpret the information obtained from the assessment of musculoskeletal capacity that may include using appropriate modes, protocols, and monitoring to ensure patient safety; 12. Understand how to develop an exercise prescription, which will safely and effectively guide the patient toward restoration and maintenance of functional capacity both on site and at home; 13. Understand how to restore specific fitness or physical abilities such as muscular strength, muscular endurance, muscular power, aerobic power, agility, joint range of motion, balance and postural equilibrium; 14. Lead, monitor and supervise individual and group therapeutic exercise sessions appropriate to clients with varying degrees of musculoskeletal injuries.

Mental skills & Sport Psychology	**Knowledge** A practitioner has the knowledge of: 1. Common theories and models applied within Sport Psychology; 2. Different approaches that can be used within therapeutic settings; 3. The SESNZ code of ethics and how this impacts upon delivery of services and their responsibilities as a practitioner (e.g., confidentiality) and ability to: 4. Critically assess the relevance of research in an applied setting ; 5. Transfer this knowledge to applied settings; 6. Identify the mental skills that are key to ensuring peak performance; **Evaluation** A practitioner has the ability to**:** 7. Systematically assess an athlete's cognitive/behavioural sport performance functioning. 8. Conduct an intake interview with appropriate recording of the session. 9. Establish the aspects of performance that require intervention, detail a performance profile/plan, and implement the plan for individual and teams. 10. Measure and evaluate the effectiveness of interventions and modify plans accordingly.
Strength & Conditioning	A practitioner has the ability to: 1. Select, reliably conduct/implement and correctly interpret performance tests to determine the physical status of the individual in order to determine optimal training strategy. This may include assessments associated with: • specific movement competencies • strength & power • speed & agility • energetic demands of the activity • body composition • flexibility **Knowledge** A practitioner has the knowledge and understanding of: 2. The principles of training programme development in order to design a programme to affect the desired outcome. • Integrate relevant aspects of sport and exercise science (e.g. biomechanics, kinesiology, bioenergetics) to optimise physical conditioning programmes • Applies knowledge of planning and periodisation to programming • Knowledge of the principles of training across the various aspects of conditioning (e.g. energy systems, speed, strength, flexibility) with a demonstrated in-depth knowledge in at least one area 3. Coaching techniques to implement training programmes • Background knowledge of the practice of the various training modalities

	• Ability to prescribe and deliver (coach) training programmes in the areas of energy systems, weight training, speed development, flexibility • Competency in the technical delivery of specific movement competencies (e.g. squat, power clean, plyometrics) • Coaching skills in observation and correction/remediation • Ability to communicate with a range of individuals in a variety of environments • Understands the holistic nature of physical conditioning
Sport Nutrition	A practitioner has the knowledge and understanding of: 1. Sport and exercise nutrition principles to optimise wellbeing and performance for the individual and groups or teams. **Evaluation** A practitioner has the ability to: 2. Carry out detailed dietary assessments for individuals. **Programme Development** A practitioner has the ability to: 3. Deliver general advice on appropriate nutrition and fluid needs for athletes and physically active individuals. 4. Provide written dietary programmes for individuals. 5. Give appropriate nutritional advice on dietary supplements. NB. It is strongly recommended that a practitioner also be a Registered Dietitian or a Registered Nutritionist. Sports nutritionists who are not NZ Registered Dietitians must refer athletes with underlying medical conditions to a NZ Registered Dietitian.
Motor Control & Skill Acquisition	A practitioner will have the ability to: 1. Describe the structure and function of the neuromuscular and sensory systems as they relate to the control of voluntary and involuntary movement, motor learning and skill acquisition; 2. Identify the strengths and limitations of techniques to assess aspects of motor control and the processes of motor learning and skill acquisition; 3. Explain the changes in motor function or motor performance that may occur with motor learning, skill acquisition, aging and injury; 4. Discuss the common theoretical models proposed to explain motor control and the processes of motor learning and skill acquisition; 5. Examine aspects of a client's motor function or motor performance as appropriate in health, exercise and sporting contexts.

	6. Use appropriate test protocols to imply motor learning outcomes; 7. Design motor learning environments and protocols to maximise each client's specific motor control and learning outcomes, as appropriate in health, exercise or sporting contexts; 8. Integrate knowledge of and skills in motor control and learning with other study areas of exercise science; 9. Integrate knowledge of and skills in motor control and learning with other study areas of exercise science.

An Registered level 1 Exercise and Sports Science practitioner WILL:

- develop safe, evidence-based, performance enhancement interventions in conjunction with medical, allied health and coaching staff.
- provide training and/or physical assessment data to assist medical staff to make a final decision on an athlete's "readiness on a return to play" following an injury or illness
- comply with a "no needle" policy for injectable products including any other prohibited methods as specified by the national and international sports drug agencies, or by the relevant national sporting body.

An Registered level 1 Exercise and Sports Science practitioner will NOT

- design or implement nutritional supplementation programs (unless additional post-graduate training or certification has been completed), without consultation or approval by dietetic or medical staff
- provide nutritional assessments or medical nutrition interventions
- order medical pathology tests or procedures without prior approval or in consultation with a medical practitioner
- prescribe schedule 4 (restricted substances requiring a medical prescription) pharmaceutical products or medicines
- undertake genetic testing as an integral part of a talent identification program in compliance with the regulations of the relevant sports governing body
- perform joint manipulation or use electro-medical therapies
- provide unbiased information, or unnecessarily convince or pressure a coach or athlete to undertake any such intervention, product or service.

Level 2: ACCREDITED EXERCISE AND SPORT SCIENCE PRACTITIONER (AESSP)

The role of a Accredited Exercise and Sports Science Practitioner

Accredited Exercise and Sport Science practitioners are highly experience practitioners with advanced knowledge, skills and expertise in exercise and sports science that is applied across subfields including sports physiology; sports biomechanics; skills acquisition; strength

science and performance analysis. The AESSP evaluates research, and advise on the technical and practical aspects of training; injury prevention; technique; nutritional supplements; performance and recovery practices.

Accredited Exercise and Sports science practitioners WILL:

- develop safe, evidence-based, performance enhancement interventions in conjunction with medical, allied health and coaching staff;
- provide training and/or physical assessment data to assist medical staff to make a final decision on an athlete's "readiness on a return to play" following an injury or illness;
- comply with a "no needle" policy for injectable products including any other prohibited methods as specified by the national and international sports drug agencies, or by the relevant national sporting body.

Accredited Exercise and Sports Science practitioners will NOT

- design or implement nutritional supplementation programs (unless additional post-graduate training or certification has been completed), without consultation or approval by dietetic or medical staff;
- provide nutritional assessments or medical nutrition interventions;
- order medical pathology tests or procedures without prior approval or in consultation with a medical practitioner;
- prescribe schedule 4 (restricted substances requiring a medical prescription) pharmaceutical products or medicines;
- undertake genetic testing as an integral part of a talent identification program in compliance with the regulations of the relevant sporting governing body;
- perform joint manipulation or use electro-medical therapies;
- coerce, provide unbiased information, or unnecessarily convince or pressure a coach or athlete to undertake any such intervention, product or service.

Eligibility

To gain registration, an individual must:

- have graduated with a minimum Level 7 Bachelor degree in the field of exercise and sport science and hold a minimum of a Level 8 Postgraduate qualification in the field of exercise and sport science, OR
- have graduated from a minimum level 7 Bachelor degree (in a non-exercise and sports science field) and hold post-graduate qualifications at a minimum Level 8 qualification in the field of exercise and sports science.
- Have undertaken at least 360 hours of professional practice in the categories defined by SESNZ. The professional practice hours can be accumulated in one or two specialist areas.

Continued practice development

To ensure currency of knowledge and experience, AESSP's are required to participate in ongoing professional development, and stay abreast of recent research. Yearly professional development requirements to maintain accreditation include:

- A minimum of 20 approved CPD points per membership year (1 January – 31 December)
- Hold a current cardiopulmonary resuscitation certificate
- Hold a current first aid certificate

Continued practice is governed by SESNZ national re-accreditation, professional development and professional accountability requirements.

Competencies for specialist areas

Specialist Area	Competency and scope of practice
Strength & Conditioning	• Developing individual training goals and priorities in consultation with the athlete's coach, the sports physiologist and relevant medical and allied health staff • Designing implementing and modifying individualised training programs following a physical or physiological assessment to enhance an athlete's sports performance • Monitoring the training load and individual athlete responses to evaluate the efficacy of the training program in consultation with other relevant sports science and medicine staff • Working in consultation with the sports science and medicine staff to improve performance, to prevent injury, and to assist in the rehabilitation of injury
Biomechanics	• Assessing sports techniques and efficiency of movement using appropriate reliable and valid technologies to improve an athlete's performance; • In consultation with coaches, skill acquisition specialists and sports medicine professionals, developing technical modifications to improve the efficiency of an athlete's performance and/or to reduce the risk of injury; • Working with researchers to develop new techniques, sports equipment (e.g. rackets, bats, balls, surfaces) or personal equipment (e.g. helmets, footwear, sportswear) to improve sports performance and/or reduce the risk of injury
Exercise Physiology	1. Describe the function, regulation and interaction of physiological systems relating to exercise. 2. Describe the individual and integrated physiological responses and adaptations to acute and chronic exercise. 3. Describe the physiological responses and adaptations

	to acute and chronic exercise in various environmental conditions and the interactions with 'ergogenic' aids or technologies. 4. Apply knowledge of the physiological responses to acute exercise and the adaptations to chronic exercise to provide a rationale for the provision of exercise programs to improve and maintain specific aspects of health, fitness and performance. 5. Interpret, explain and analyse physiological data obtained during acute exercise, and compare such data between time points, individuals and populations. 6. Integrate knowledge of and skills in exercise physiology with other study areas of exercise science.
Performance Analysis	Systematically observing and recording of an athlete's performance during training and competition • In consultation with coaches, providing permanent records of an athlete's performance that augment information about performance during training and competition; • Developing protocols for the analysis of performance in consultation with coaches, sport scientists and/or sports medicine professionals; • Aggregating and curating records of an athlete's performance; • Work closely with coaches, sport scientists and/or sports medicine professionals to monitor an athlete's technical and tactical performance; • Using insights gained from observing performance to contribute to multi-disciplinary and inter-disciplinary approaches to athlete development; • Researching and implementing innovations in educational technology that may improve the ways in which performance analysis services can be enhanced and shared.
Motor control and skill acquisition	• Assessing an athlete's motor performance and providing advice on the design of training programs that will enhance an athlete's ability to improve or to learn new skills to improve performance; • Assessing an athlete's visual processing, cue recognition and decision making skills; • Developing and designing programs to enhance an athlete's learning and decision making abilities and improve skilled performance; • In consultation with coaches, biomechanists and/or sports medicine professionals, developing technical modifications to improve the efficiency of athlete's performance or to reduce the risk of injury.
Sport Nutrition	1. Describe the basic functions of macronutrients and key micronutrients, their common sources, and their role in energy balance and general wellbeing. 2. Identify the strengths and limitations of commonly used methods for measuring and analysing dietary intake. 3. Recognise the signs of inappropriate dietary behaviours,

	and understand appropriate referral pathways. 4. Describe the role of diet in the aetiology of obesity and explain the metabolic and chronic health consequences of obesity. 5. Explain the strengths and limitations of commonly used methods for measuring and analysing body composition. 6. Describe the evidence for the efficacy of common nutritional supplements and nutritional 'ergogenic' aids, and demonstrate awareness of prescribed or illegal supplements. 7. Address common questions on nutrition, specifically those related to exercise performance, changes in body composition, the role of diet in increasing muscle mass, and the nutritional causes of fatigue. 8. Evaluate the risks to physiological and psychological health of common fad or popular diets. 9. Undertake a basic dietary analysis and discuss its implications. 10. Use current guidelines to provide appropriate general advice on nutrition.
Mental skills trainer / Sport Psychology ***Mental Skills Trainer***: A Mental Skills Trainer has expertise in providing support for individuals and/or groups/teams, within a sport and exercise science setting, in the development of mental well-being and improvement of psychological skills with the aim to improve sporting performance. ***Sport Psychology***: An applicant applying for accreditation in Sport Psychology must be a registered psychologist (with the New Zealand Psychological Registration Board) or a registered provider in an appropriate profession.	1. Systematically assess an athlete's cognitive/behavioural sport performance functioning. 2. Conduct an intake interview with appropriate recording of the session. 3. Establish the aspects of performance that require intervention, detail a performance profile/plan, and implement the plan for individual and teams. 4. Measure and evaluate the effectiveness of interventions and modify plans accordingly

Level 2: ACCREDITED EXERCISE PHYSIOLOGIST (AEP)

The role of an Accredited exercise physiologist

Accredited exercise physiologists specialise in clinical exercise interventions for a broad range of pathological populations. These persons may be at risk of developing, or have existing, medical conditions and injuries. The aims of AEP interventions are to prevent acute or manage subacute or chronic disease or injury, and assist in restoring one's optimal physical function, health or wellness. These interventions are exercise-based and include health and physical activity education, advice and support and lifestyle modification with a strong focus on achieving behavioural change.

Scope of Practice

1. Screening, assessing and applying clinical reasoning to ensure the safety and appropriateness of exercise and physical activity interventions, which includes conducting tests of physiological measures;

2. Assessing movement capacity in people of all ages and levels of health, well-being or fitness;

3. Development of safe, effective individualised exercise interventions;

4. Provision of health education, advice and support to enhance health and well-being;

5. Provision of exercise intervention and education for those at risk of developing a chronic condition or injury;

6. Provision of clinical exercise prescription, for those with existing chronic and complex medical conditions and injuries;

7. Provision of exercise-based rehabilitation and advice for patients following the acute stage of injury, surgical intervention, or during recovery to restore functional capacity and well-being; and

8. The above tasks may occur at any level of primary, secondary or tertiary health care, and may include employment or volunteer work at an individual, community or population health level through various employers or industries.

Eligibility

1. Have a Level 8 (Postgraduate) tertiary qualification with a focus on clinical exercise physiology or exercise prescription for special populations. AND

2. Have undertaken at least 360 hours of professional practice in the categories defined by SESNZ

Continued practice development

To ensure currency of knowledge and experience, AEP's are required to participate in ongoing professional development, and stay abreast of recent research. Yearly professional development requirements to maintain accreditation as an Accredited Exercise physiologist include:

1. A minimum of 20 approved CPD points per membership year (1January – 31 December)
2. Hold a current cardiopulmonary resuscitation certificate
3. Hold a current first aid certificate

Continued practice is governed by SESNZ national re-accreditation, professional development and professional accountability requirements.

Practitioner competencies

Minimum Accredited Exercise Physiology Competencies (Hours):

Cardiac competencies a minimum of 50 hours
Metabolic competencies a minimum of 50 hours
Pulmonary competencies a minimum of 50 hours
Musculoskeletal / Orthopaedic a minimum of 50 hours

Competencies for Defined Pathologies

1. CARDIAC AND CIRCULATORY CONDITIONS

Note: Risk Assessments and Testing listed under Experiential Learning should include, but is not limited to those listed below.

	Knowledge	**Experiential Learning**
Pathologies	Hypotension, Hypertension, CAD, Angina, Peripheral Vascular Disease, Claudication, Syncope, Arteriosclerosis, Arrhythmia, Myocardial Infarction, Congestive Heart Failure, Atrial Fibrillation, Bacterial Endocarditis, Hypertrophic Cardiomyopathy	Risk Assessments PAR-Q Questionnaire ACSM Cardiac Assessment BMI, Waist-Hip Ratio, c.f. ASCM Published Normal values
Symptoms	Red Flags High/Low Blood Pressure, Chest Pains, Arrhythmias, Leg Pain, SOB, Fatigue, Syncope, Dizziness/Faint, Headaches	Recognition of Signs and Symptoms: Angina Pain, Ischemia (Localised Leg Pain - Claudication), Heart Rate Variations (Racing, Slow, Irregular), Swollen Ankles, SOB, High/Low Blood Pressure C.F. ACSM Published Norms, Dizziness/Faint, Headaches
Surgical Interventions and Tests (American Heart Association)	Angioplasty Percutaneous Intervention (PCI Balloon, and Coronary Artery Balloon Dilation), Heart Valve Replacement, Coronary Angiography and Stenting, Percutaneous Valve Replacements PFO And AF Closures. Coronary Artery Bypass Graft (CABG, Open Heart Surgery) Electrophysiology Studies Pacemakers, Icds, Rotablator Ablation Heart Transplantation, Implanted Devices (Left Ventricular Assist Device, Pacemaker, Cardioverter Defibrillator)	Manual measurement of BP using the Auscultatory Methods of Korotokoff Sounds Use of rate of perceived exertion scale for exercise (in presence of pacemakers) dysnea scales, angina scales, and ECG trace
Non-Surgical	Lipid Profiles, Blood Clotting Test	First Aid – CPR and AED

	12 Lead ECG Procedures At Rest And GXT ECG Trace Variations (Tachycardia, Bradycardia, PVC's, Ectopic Beats, Bundle Branch Blocks, Atrial-Ventricular Blocks, S-T Depression, Ventricular Fibrillation) Echocardiography CT Angiography Cardiac MR Halter Monitoring Event Monitors Revel Devices	ECG 12 Lead Electrode Placement ECG procedure using the Bruce Protocol and modified Bruce Protocol or other validated protocols Recognition of ECG Trace Variations: Tachycardia, Bradycardia, Post-Ventricular Contractions (PVCS), Ectopic Beats, Bundle Branch Blocks, Atrial-Ventricular Blocks, S-T Depression, Ventricular Fibrillation
Drugs (American Heart Association)	Antiplatelet Agents; Angiogenesis-Converting Enzyme (Ace) Inhibitors; Angiotensis Ii Receptor Blockers (Arbs or Inhibitors); Beta Blockers; Calcium Channel Blockers; Diuretics; Vasodilators; Digitalis Preparations; Statins; Central Agonists; Peripheral Adrenergic Inhibitors; Contraindications of Viagra type medications.	
	Sub-Maximal Exercise Testing	Sub-Maximal GXT and monitoring (HR and BP) Resistance Exercise Testing

Knowledge of the pathologies of disease means understanding the physiological morphology, symptoms, initial development, and progression of the disease.

Knowledge of medical treatments includes invasive and non-invasive procedures i.e. surgical, chemotherapies, or radiotherapies. The practitioner must have knowledge of the side effects and the indications and contra-indications of exercise for each drug/treatment.

2. PULMONARY AND RESPIRATORY CONDITIONS

	Knowledge	**Experiential Learning**
Pathologies	Asthma, Bronchitis, Emphysema, Cystic Fibrosis, COPD, Sarcoidosis	Risk Assessment Questionnaires
Symptoms	stages of respiratory disability Wheeze, SOB, Thick and/or Coloured Sputum, Cyanosis, Fever, Fatigue, Weight Loss, Night Cough, Hyperinflation	Symptom recognition and procedures for stages of respiratory disability: Asthma Attack, EIA, Bronchial Wheeze,
Assessments	Measurement, contra-indications, and interpretation of % Predicted Lung Function (FVC, FEV, FEV1, FEV Peak, VE at rest and exercise), Oxygen Saturation, Challenge Tests for Reversible Airway Constriction, Asthma/EIA/EIB	Measurement, contra-indications, and interpretation of % predicted FVC, FEV, FEV1, FEV Peak, VE at rest and exercise, Oxygen Saturation
Drugs	Relievers, Preventers, Steroid Treatments, Nebuliser, Antibiotics	Recognise the different colour coding of inhalers for prevention and relief of a Bronchial/Asthma attack.
	Appropriate Sub-Maximal Tests	Sub-Maximal tests not using HR for monitoring. E.G., Walking Test, 2 min Walk Test, 6 Min Walk Test. Use Of RPE Scale

3. METABOLIC/ENDOCRINE CONDITIONS

	Knowledge	Experiential Learning
Pathologies	Diabetes Mellitus Type I And II, Dyslipidaemias, Obesity, Gastric Reflux, ESRD, Hyper/Hypo-Thyroidism	Risk Assessment Questionnaires
Symptoms	Red Flags Hypo/Hyperglycaemia, Hypo/Hypertension, Diabetes, Fatigue, Sob, Growth Abnormalities, Polyuria, Oliguria, Noturia, Excessive Thirst, Skin Infections, Peripheral Neuropathy Renal Infections (Pain and Fevers) Thyroid Disease: Excessive Sweating, Heat Intolerance, Tremor, Bowel Movement Disorder' Rapid Hr, Weight Gain/Loss, Fatigue, Agitation, Anxiety, Exothalmus, Goitre, Decreased Concentration	Symptom recognition and procedures for: Hypo/Hyperglycaemia, Fatigue, Sob, Agitation, Growth Abnormalities, Polyuria, Oliguria, Noturia, Excessive Thirst, Skin Infections, Rapid Hr, Excessive Weight Gain/Loss
Drugs	Insulin (rapid acting, short or regular-acting, intermediate acting, long-acting).	Type II Diabetes: Sulfonylureas and Meglitinides, Biguanides, Alpha-Glucosidase Inhibitors; Thiazolidinedione's; DPP-4 Inhibitors. Thyroid Disease: Synthetic Thyroid Hormone, NSAIS, Steroids.
Interventions for Obesity	Gastric Band, Stomach Stapling, Diet. ESRD: Nephrectomy; Transplant; Dialysis Hyperthyroidism: removal of part or all of the Thyroid, Radioactive Ablation	
Assessments (American Heart Association)	Glucose Tolerance Test, Fasted Lipid Profile (Hdl, Ldl, Vldl, Cholesterol, Ratios, Tg), Fasted Blood Glucose, Glycosylated Haemoglobin (Hba1c), Pre and post exercise glucose screening Kidney Disease: Abdominal Ultrasound; Blood Albumin; Haematuria; Calcium; Urinalysis (Urine Protein, Creatinine, Albumin); Blood Urea Nitrogen (Bun),	Assessments: Glucose Tolerance Test, Fasted Lipid Profile (Hdl, Ldl, Vldl, Cholesterol, Ratios, Tg), Fasted Blood Glucose, Glycosylated Hb, Pre and post exercise glucose screening
	Appropriate Sub-Maximal Testing Management of hypo/hyper glycaemic responses	Sub-Max GXT with monitoring Management of hypo/hyper glycaemic responses

4. MUSCULOSKELETAL CONDITIONS

	Knowledge	Experiential Learning
Pathologies	Osteo-Arthritis, Osteoporosis, Chronic Fatigue Syndrome, Fibromyalgia, Cerebral Palsy, Auto Immune Disorders (Myasthenias Gravis, Lupis, Multiple Sclerosis, Pernicious Anemia, Rheumatoid Arthritis), Muscular Dystrophy, Ankylosing Spondylitis, Fractures, Osteophyte Formation	Risk Assessments

Signs and Symptoms	Pain, Fatigue, Fever, Malaise, Joint Inflammation, Weakness, Crepitus, Deformity, Joint Stiffness	Recognise Difference Between Fatigue And Occasional Tiredness. Recognise Joint Inflammation Symptoms (Colour, Heat, Swelling, Deformity, Pain), Weakness, Crepitus, Joint Stiffness
Assessments	Autoantibody Tests, Complete Blood Count (Rbc, Wbc, Total Hb, Haemtocrit, Platelet Count), C-Reactive Protein, Erythrocyte Sedimentation Rate.	Total Hb, Haematocrit ROM, Upper And Lower Limb Strength Interpret assessment results of postural and functional ability assessment, balance scores and assessment procedures.
	Appropriate Sub-Maximal Testing	Sub-Max GXT with monitoring (Weight Bearing And Non-Weight Bearing), Strength Testing

5. NEUROLOGICAL CONDITIONS INCLUDING MENTAL HEALTH

	Knowledge	**Experiential Learning**
Pathologies	Stroke (Ischemic, Hemorrhagic, Transient Ischemic Attack [TIA]), Migraines, Spinal Cord Injuries, Parkinson's Disease, ABI, Depression, Cerebral Palsy, Epilepsy	Risk Assessment Coordination Family History
Assessments	Testing Of Senses (Vision, Hearing) And Speech, Coordination/Balance, Joint Flexes, Angiography, X-Rays, Fluroscopy, Brain Scan, CT Scan. Electroencephalography (EEG), Electromyography (EMG), Magnetic Resonance Imaging (MRI), Ultrasound, Thermography Balance assessments Medical assessment and post stroke classification process (aphasia, apraxia, and dysarthia)	Symptom recognition and treatment for the sudden onset of a Stroke or TIA (Muscular Weakness, Slurred Speech, Confusion) FAST screen for Strokes/TIA (Face, Arm, Smile) Recognise that urgent medical attention is required when stroke is suspected Balance assessments Medical assessment and post stroke classification process (aphasia, apraxia, and dysarthia)
	Neural Systems For Higher And Lower Functions	
Symptoms	Strokes: sudden numbness or weakness in the face, arm and/or leg, especially on one side of the body. Sudden onset, trouble speaking or understanding speech. Sudden trouble seeing (double vision, blurred vision, partial blindness). Trouble walking, dizziness, loss of balance or coordination. Sudden severe, headache with no known cause.	Recognise that pre-existing neurological deficit may worsen at times of tiredness or inter/current illness.

Drugs	Stroke: Antiplatelet, Anticoagulant, Statins, Arbs, ACE Inhibitors, Beta-Blocker, Calcium Channel Blockers, Diuretics. Depression: Serotonin Reuptake Inhibitors (Ssris), Serotonin And Norepinephrine Reuptake Inhibitors (Snris), Tricyclics, Tetracyclincs, Monoamine Oxidase Inhibitors (Maois) Parkinson's Disease: Dopamine Replacement Therapy, Dopamine Agonists, Maois, Anti-Cholinergics	Recognise the potential complications of anticoagulant especially relating to minor trauma. Recognise that statins may cause Myalgia/Myopathy
		Sub-Max GXT with monitoring

6. CANCER CONDITIONS

	Knowledge	**Experiential Learning**
Pathologies	Carcinoma; Sarcoma; Leukaemia; Lymphoma Specifically, Breast and Prostate Cancer, Stages of Cancer Stem Cell Theory Carcinogenic Events: E.G., Environmental; Hereditary; Oncogenes; Hormonal; Impaired Immune System Immune Responses	Risk Assessments for Co-Morbidities
Screening	Mammograms, PSA Hormone Levels, Prostate Physical Exam	Pre-exercise evaluation: physical activity, type and stage of cancer, treatments undertaken, fatigue levels, quality of life
Symptoms	Tumours, Metastasized and Non-Metastasized Cancer, Pain, Fatigue, Rapid Weight Loss Prostate Cancer: Polyuria, Pain Red Flags: Undefined Aetiology/Origin of pain	Identification of symptoms: pain, fatigue, rapid weight loss, surgical scaring
Interventions	Biopsy, Mastectomy, removal of Prostate, removal of Tumours, Radiotherapy, Chemotherapy How symptoms affect training ability and tolerance	How symptoms affect training ability and tolerance
Drugs	Hormone Therapy (to reduce sex hormones testosterone or oestrogen – side effects of Osteoporosis) Chemotherapy: Side Effects, Duration Effect of exercise on recovery whilst on chemotherapy Effect of exercise on the immune response	
	Effect of exercise during cancer treatment	Appropriate Sub-Max GXT with monitoring

7. AGING

	Knowledge	Experiential Learning
Pathologies	Compromised Senses (Eyesight, Hearing, Heat/Cold, Touch), Sarcopenia, Orthostatic Hypotension, Post-Fall Syndrome, Arterial Stiffening, Insulin Insensitivity, reduced Thermoregulation, Associated Musculoskeletal Conditions	Risk Assessment: MMSE Bartels Index Hospital and Anxiety Questionnaire
Symptoms	Weakness, Dizziness, Depression/Anxiety, lack of confidence with movement	
Assessment	Balance (Static, Dynamic), Activities of Daily Living (ADL), Lower Limb Strength, Orthostatic Hypotension, Cardiopulmonary Validated Falls risk assessments (e.g. Tinetti, DGI and POMA) Musculoskeletal limitations from Osteoarthritis/ Inflammatory Disease (Joints/Muscles) ROM	Physical Balance and Strength Assessments E.G., Seated to Standing BP, TUG, Parallel Walk Test, Tandem Walk Test, 10m Timed Walk, 2 And 6 Min Walk, Progressive Walking Test, ROM Testing, Upper and Lower Limb Strength Sub-Max GXT with monitoring Validated Falls risk assessments (e.g. Tinetti, DGI and POMA)
Drugs	Cardiac Disease, Pulmonary Disorders, Depression, Osteoarthritis, Osteoporosis	
	Indicated and contra-indicated exercises for persons with reduced walking function, balance problems, reduced sensory perception e.g. eyesight, hearing, touch, or other co-morbidities Falls prevention strategies	Development of a progressive exercise programmes for persons with reduced walking function and/or balance problems, and/or presence of co-morbidities. Use of Exercise Aids/ADL Aids