



VO₂max, metabolic & body composition assessments:

Melbourne Sports & Allied Health Clinic integrates high precision science with expert interpretation and guidance, to ensure the most effective and sustainable fitness and health outcomes are achieved. Beneficiaries include individuals of all ages and abilities, who strive to maximise their health, training and competition outputs, via improvements in body composition; cardiorespiratory fitness; strength; metabolic economy; resilience and vitality. Physiological and body composition evaluations during different phases of training & competition provides valuable information about specific responses and adaptations, or limitations that effect performance.

Cardiopulmonary fitness (VO₂max):

Maximal aerobic capacity is quantified by undertaking a VO₂max assessment - the global gold standard measure of cardiopulmonary fitness. Cardiologists and exercise physiologists consider VO₂max as a critical “vital signs” evaluation; since low VO₂max is strongly associated with significant risk of heart conditions; cancers; dementia; type 2 diabetes; and depression, amongst other chronic diseases. Assessing VO₂max also provides the beneficiary with a specific outcome focus that is realistic and targeted.



VO₂max – what’s involved?

There are two different VO₂max methods.

-1min increments without blood lactate measures (approx. 10-12min)

OR

-3min steady-state increments with blood lactate measures (approx. 20min)

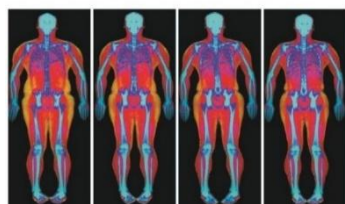
For both methods, the evaluation starts at approximate 50% intensity, progressing in either 1 or 3-minute stages until VO₂max is reached. A face mask is secured around your head to continuously measure oxygen consumption. Heart rate is also monitored continuously. For the steady-state incremental method, micro blood samples are taken from a fingertip during each stage to assess metabolic responses to graded exercise. You will also be asked to rate your interpretation of intensity during each stage (6–20-point BORG scale), which is then integrated with your physiological metrics.

Following the test, comprehensive feedback is provided, highlighting key results including training zones, aerobic and anaerobic threshold, and recommendations that are unique to your physiology, goals and health risks.



Body composition (DEXA Scan):

Body composition is assessed via Dual energy X-ray absorptiometry (DXA) which is a well-established and high precision technique for measuring bone mineral density (BMD), body fat (including visceral fat) and lean muscle mass. Increased body fat, particularly within the visceral cavity (deep abdominal region) increases the risk of developing type 2 diabetes; heart disease; and several cancers. Decreased muscle mass and bone mineral density increases risk of musculoskeletal diseases and accelerated ageing and frailty. Like VO₂max, assessing body composition provides beneficiaries with an outcome focus specific to the metric measured.



**Baseline blood test:**

A fasted blood test that encompasses cardiometabolic and inflammatory markers, provides insight into cardiovascular and metabolic disease risk, and ties in with fitness and body composition outcomes. Metabolic dysfunction (particularly insulin resistance) impairs the body's ability to maintain healthy body composition. Exercise, dietary and other lifestyle guidelines are specifically targeted to mitigate insulin resistance, fatty liver, lipids and systemic inflammation. Panels tested include full blood count; urea and electrolytes; liver function; insulin; glucose; HbA1C; lipids; hs-CRP. The magnitude of insulin resistance is quantified by HOMA-IR method (via Glucose and Insulin calculations). Blood test results within 3 months is preferred or we can arrange referrals.

Expected outcomes: You will be provided with the best practice guidelines on methods to improve cardiopulmonary fitness; strength; body composition; injury and illness prevention.

Preparing for VO_{2max}:

We advise you to refrain from exercise, food and caffeine for ~3-4hrs prior to the test. If you are training the previous day, light or recovery paced exercise is advised. A medical questionnaire will be sent to you and is required to be sighted by the administering physiologist prior to commencing the test. You will wear your regular training apparel.

Preparing for DXA:

In preparation for DXA, it is helpful to wear clothing which is loose fitting and free of metallic attachments such as buttons, zippers, buckles, wired bras and fasteners. You will also need to remove any attached metallic devices, such as jewelry. You must notify the practitioner if you think you could be pregnant. DO NOT schedule your DEXA scan within one week of having a barium x-ray, a nuclear medicine study or an injection of x-ray dye. Prior to your test, do not eat a heavy meal or exercise vigorously. DEXA is a simple and fast procedure, involving no injections and is not painful. You will be required to lie face up on a padded table for ~5 minutes.

Preparing for blood test:

If required, a blood test order form is raised and sent to you. A link to a pathology collection centre convenient to your location is provided. Avoid heavy exercise the day before the blood test, and refrain from exercise or eating in the morning of the test. An overnight fast of 10-12 hours is required.

Bookings of fees:

Please advise if you wish to undertake a 1min incremental VO_{2max} test without blood lactate measures, or the 3min increments with blood lactates.

If you are only interested in VO_{2max}, without steady state values and training zones, the 1min protocol is sufficient (**\$350**). However, if you want to know aerobic and anaerobic threshold, training zones (heart rate and pace) and VO_{2max}, then the 3min stages protocol is required (**\$400**).

Each VO_{2max} test option includes the assessment and detailed interpretation of results, context of results, realistic future adaptations, and a comprehensive report.

You can book directly online if you wish, go to www.msahc.com.au and click on the booking button and select VO_{2max}.

The DEXA scan is facilitated by radiographer Tony Eid across the road from our clinic, click on the Booking button and select the 2nd option for "quick scan" <https://www.bodydexafit.com.au/> (ignore the DNA add on).

You can then see what lines up with the scan first followed by VO_{2max}.

DEXA fee is **\$120** without interpretation (you'll pay Tony when booking). Allow 15min for the scan.

A referral is required for DEXA which we can prepare for you (**\$30**), or you can select the referral option that Tony provides (**\$40**) in the booking process.



The questionnaire information you will provide (via the registration and consent forms) will be sufficient to prepare the DEXA referral.

Immediately after the VO_{2max} assessment and interpretation, we will interpret the DEXA results (**\$40**), highlight key findings, and provide recommendations in unison with your training guidelines.

Private health rebate is available for assessments / interpretations / referral with me if you have extras cover / exercise physiology. No rebate is available for the DEXA scan.

Summary of Fees:

Dr Simon Sostaric

- VO_{2max} assessment, interpretation and report = **\$350** (without lactate) or **\$400** (with lactate).
- DEXA referral **\$30**
- DEXA interpretation **\$40**

Mr Tony Eid

- DEXA scan = **\$120**

Dr Simon Sostaric., PhD.,BAppSc.,AEP.,AES



Simon is a distinguished clinical exercise physiologist, sports scientist, researcher and founder of Melbourne Sports & Allied Health Clinic - a private practice specialising in exercise for healthcare; sports performance; disability therapies; rehabilitation and education.

Clinically, Simon specialises in metabolic and cardiovascular function; muscle function; autoimmune disorders; ageing and longevity. His research expertise includes mechanisms of fatigue, muscle metabolism and thermoregulation.

Simon has practiced for 30 + years, including multi-year periods in Japan, UK, and USA. Outcome focuses include:

- developing & validating scientific innovation in healthcare, ageing & longevity, and human performance
- holistic and integrated approach to improving quality of life & reducing impact of common chronic conditions
- bridging gaps between complex mechanistic research and effective practical applications
- managing and preventing cardiometabolic diseases

Simon regularly presents research outcomes, workshops and healthy lifestyle key notes in Australia and abroad and publishes in high impact factor peer reviewed journals. He is also currently Review Editor on the Editorial Board of Exercise Physiology (specialty section of *Frontiers in Physiology Journal*, and *Frontiers in Sports and Active Living Journal*).

Simon has also accomplished an international track record in endurance and extreme sports. He is regularly engaged by global professional sporting organisations, institutions and athletes - to provide expertise in leadership, performance methodology, innovation, and ethical best practice.