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Welcome

Welcome to another edition of A Healthy Pace – your lifestyle, wellness, exercise and injury prevention magazine. 2017 has flown by and if you don't actually take stock every now and again you'll wonder where its gone!

At PACE and we are all looking forward to helping our wonderful network of clients, business and referrers set themselves up for more success in 2018.

In this issue we focus on just a few of our real world success stories. Each and every day people just like you come to us for health and wellbeing guidance and advice. Through goal setting and action planning we help our clients overcome the barriers that are holding them back. Enjoy the Q and A's with these great clients and perhaps they can inspire you too! We've also included a cut out wellness diary to help get you started!

Our research piece this issue focuses on the debilitating, and all too common, Ankylosing Spondylitis (AS). This chronic inflammatory disease generally presents form the ages of 20 - 45years and has a lifetime impact on the sufferer. In this issue we discuss the benefits of exercise for AS and also provide a basic home program to restore and maintain spinal mobility.

Did you know that in Australia, 8% of people aged 15 years and over consider themselves "runners". That's 1.65 million people! Luckily for all you runners out there we teach you how to land well to recover quickly from knee injuries and to also create resilience within the knee joint. Our friends at Stonnington Podiatry also discuss common heel pain causes.

If you like keeping up to date with the latest advancements in health related research and best approaches for sustainable activity then head online and connect with us through facebook and instagram!

Since 1998 PACE have been helping people make better choices toward a creating a healthier lifestyle. We're here to help!

We hope you enjoy this issue, we welcome your feedback and we look forward to seeing you in one of our clinics soon.

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JUNIOR DEVELOPMENT PROGRAMS



When is it appropriate for children to perform strength training?

Resistance training at any age is a highly effective way to improve sporting performance, reduce injury risk, improve quality of life and decrease risk of chronic disease.

So when is the right time to start? A common concern people have with resistance training for youths is the risk of injury and stunting growth. It is a common myth that children shouldn't start lifting weights until they are fully matured as it stunts their growth due to damaging the growth (epiphyseal) plates, which are responsible for creating growth of the long bones. These growth plates are actually highly resistant to shearing forces, which are the kind of forces put through the bones during activity.

Research has identified that injury rates in youths performing resistance training are lower than injury rates in competitive sports. When we look at injury rates in competitive sports, it is also documented that injury rates are lower in the youths who complete resistance training, compared to their nontrained counterparts. That is to say, adolescents completing resistance-based training are less likely to be injured in the gym than in sport, and less likely to be injured in their chosen sport if they regularly complete resistance training at the gym.

So why are these injury rates reduced?

When resistance training is performed correctly, including proper technique and coaching, appropriate exercise selection, suitable load and repetitions, rest periods and tempo (speed of movement), it will create specific adaptations to the athlete's body and more importantly neural system. The main improvement we aim to achieve in coaching youths is improved development of motor control/ patterns. By improving how they move, we can achieve greater strength, speed and power, which can be translated to the sporting realm. This improved movement pattern also means the young athlete is better at jumping, landing, running in a safe and effective manner. That is to say they more effectively disperse the load between working muscles, opposed to over working muscles, or incorrectly loading joints.

Appropriately designed and well-supervised resistance training programs actively prevent injury by increasing the strength of supportive tissues (muscles, tendons and ligaments) as well as improving movement patterns such as running, jumping and landing. There are long lasting benefits of completing resistance training at a young age, including a protective effect against osteoporosis through increased bone mineral density at a developmental age, as well as a protective risk factor against obesity later in life, due

to increased lean muscle mass. Resistance/weight training can also significantly improve selfesteem, confidence and social interaction.

At PACE Health Management we aim to provide junior training in a safe, progressive but most importantly FUN environment. Seen below are examples of junior athletes completing individualised programs either in a group or 1:1 setting.



Q&A *with* DION

Why did you first come to Pace?

I first came to PACE to improve my strength program. As an elite ultra-marathon runner, having a strong body is almost as important as doing a long run. I used my strength program to increase my core endurance to help prolong the effects of fatigue and improve my running form during my long runs.

I met Ben through my work at Physio@Sandringham (next door) where I work as a remedial massage therapist. So I understand how important it is to look after your body and maintain an evolving program.

What changes have you noticed since starting at PACE?

I have noticed that my core is so much stronger. My glutes are all firing properly, my calves have gained lots of strength endurance and I am not as reliant on my hip flexors to do the hard work anymore.

What barriers have you faced (if any)? How have you overcome these barriers?

I faced a few challenges. My first one was to incorporate my strength training within my week of run training. I set my program on my recovery days so that I wasn't doing my interval sessions on sore and tired legs. Another was to start at a very basic level and developing my muscle groups at a manageable level. This started me doing double leg bridges, then single leg bridges, then double leg squats and eventually getting strong enough to perform single leg sit-to-stands.

Having a specific program created for my own requirements made this process so much easier and also having other people in the group made it quite social too.



My next set of goals is to develop my core even more, continue to utilise my glutes and posterior chain muscles to their maximum potential, and to set a new marathon PB at the Fukuoka marathon in Japan later this year. My current PB is 2:27

What advice would you give to someone in your situation?

Find a good exercise physiologist who will create a program that suits your goals, weaknesses, ability and can adapt to your developing body.

Get involved with a group who you can be social with. I find this all keeps me more accountable for more than just myself.

Set yourself a goal, write it down, make small goals to help motivate you along the way to your main goal.

Most of all. ENJOY THE CHALLENGE and have fun while improving your health.

LEARN TO LAND WELL Before you return to running following a knee injury



Tessa Hinds is a Clinical Director at The Physio @ Sandringham Clinic in Sandringham, Melbourne. She has a 15+ year history of clinical interest in knees and sports injuries. So many people return to running following injury without looking at how they land. An important aim of gait and running re-training for those with knee pain is to reduce the load at the knee. There is usually a need to work on improving impact through the whole kinetic chain of the legs and spine.

Here are some tips that may help you to get back to healthy running & activity;

Landing with a bent knee is optimal – learning to shock absorb with the muscles around the knee rather then the knee joint itself is ideal.

Landing under the hips – reduce striding too far. Landing with the foot under the hip stops the knee extending and keeps the pelvis in its optimal stable position.

Quick feet – increasing your cadence (how quickly your feet step one after the other) will help with shortening your stride. This helps lessen the impact. A long bounding stride will cause an increase in load and potentially switch off core activation.

Relaxed landing – easier said than done but tension in musculature will increase forces through the joints.

Good posture – being in good alignment allows you to take advantage of all the above. Run tall. Keep your gaze straight ahead. Your lean should come from the foot and ankle.

Strength and Conditioning – when you are running, it's not only body weight going though the legs and feet but also gravity. Gravitational force can increase with quicker running speeds. This is one of the reasons that strength and conditioning is essential. Gluteal strengthening of both the gluteus maximus (low buttock) and gluteus medius (high and deep to the gluteus maximus) along with traditional squats and lunges will help greatly. There is also evidence to support the requirement of calf strength to help with propulsion forwards, which may also take stress away from the knee. Advancing these simple exercises to single leg and weighted exercises will help. Eventually, exercises involving more complex chain movements at higher load will help to progress to further controlling degrees of impact.

As physiotherapists, we work to ensure people understand their correct posture and movement patterns first. Flexibility and strength techniques follow before educating improved running techniques.

HEEL PAIN



Heel pain is most certainly the number one cause of attendences at Stonnington Podiatry. There are several structures within the region of the heel that can cause heel pain. Often it is more than one structure contributing to heel pain.

These are three of the most common causes

Plantar Fascia

The plantar fascia originates at the bottom of the heel and runs through the bottom of the foot with its end point into all the toes. As the toes bend back, the plantar fascia tenses and facilitates propulsion, hence movement being the number one cause of heel pain. Often people will feel a pulling at the heel when standing on the toes. Pain is typically felt at the bottom of the heel or mid arch on first steps after rest and in the morning. Depending on severity of the injury, pain may last anywhere from seconds to minutes. Typically this pain eases once the foot has been moving and may return after long periods of weightbearing.

Nerve Pain

The posterior tibial nerve and sural nerves are two key contributors to heel pain. Nerve pain is often felt at the heel and often through the arch. Clients often describe a burning or shooting sensation in the arch. This pain often occurs in bursts and may only last for 1-2 seconds at a time at random intervals.

Tight Muscles

Within the arch, there are several muscles which we call the intrinsic muscles of the foot. All of the intrinsic muscles attatch into a region around the medial heel and extend within the arch to attachments in the toes. Often with new or unfamiliar activity, tight calf muscles, long periods of walking or excessive use of thongs the arch muscles become overloaded and extremely tight, restricting the mobility of the foot. Often this pain is felt on morning rise, eases with walking but comes back after 1-2 hours of walking on the feet as the muscles again fatigue.

Most typically in our clinic we see heel pain that arises from all three of the above at once. As no single structure of the foot works independantly, all structures are influenced by the function of another. For example, if a client has severe nerve pain often the muscles will fire excessively causing tightness. This may then limit foot mobility and therefore the ability of the big toe to pull the plantar fascia tight.

To treat heel pain, it is essential that the underlying cause of the pain is determined. Without this, simply rolling on a golf ball or stretching may be doing more harm than good. The key to any treatment is to identify the cause, reduce the damaging load through the structure and then improve its ability to tolerate the load. Both Andrew and Paul at Stonnington Podiatry can help diagnose and manage this correctly.

In most cases, an initial period of taping to reduce load is followed by deep tissue massage or dry needling to improve mobility of the intrinsic muscles. A change in





footwear or orthotic device may be required if the foot is not capable of holding position enough to protect the structures involved. Once this has been achieved and the foot is capable of movement, strengthening of the structures should commence.

As you can gather, heel pain can be caused by a number of things. If you or anybody you know suffers from heel pain, it is advisable to get a correct diagnosis prior to attempting to treat the injury. A quick diagnosis and prompt treatment can help to prevent long term chronic pain.

Stonnington Podaitry specialises in all foot and ankle sports related injuries. If you would like to make an appointment contact our clinic on 9576 0467



TOP 5 THINGS TO SWAP THIS SPRING!

Now that the weather is getting warmer, it's time for a spring clean and to shake off those few extra kilos you may have gained over the winter months.

Here are a list of 5 things you may want to swap this spring in order to improve your nutrition and health.

- 1. Swap white bread for wholegrain bread Wholegrain bread is higher in dietary fibre and low GI meaning it get gets broken down slower by the body making you feel fuller for longer and hopefully preventing overeating.
- 2. Swap takeaway pizza for homemade pizza Bought pizza is usually incredibly high in saturated fat and calories. Consider making your own pizzas at home using wholemeal pita bread wraps for the base, extra light tasty cheese and plenty of veggies to keep the calories low.

- 3. Swap cider for vodka sodas Cider is very high in calories and sugar whereas vodka soda has no sugar and fewer calories. Add a slice of lemon or lime for an extra kick but remember to still watch the number of drinks you consume.
- 4. Swap butter for avocado

Butter is high in unhealthy saturated 'animal' fat whereas avocado is high in healthy unsaturated 'plant' fat which helps improve cholesterol and protect against heart disease.

5. Swap fruit juice for fresh fruit

Fruit juice is much lower in dietary fibre and high in calories. It also doesn't provide the same 'bulk' that fresh fruit does, meaning you are likely to keep on snacking.

SUPPLEMENT REVIEW

Protein

Protein is essential for muscle growth and repair and is found in a variety of food including red meat, poultry, fish, dairy products, eggs, nuts, tofu and legumes. Now, there is a huge range of protein and amino acid shakes, powders and bars on the market.

Most people and even athletes will easily reach their daily protein targets following their usual diet. Protein supplements can be used to provide a guick, convenient source of protein especially when appetite is reduced post-exercise and protein needs are high. There are a number of different protein however, whey protein is the most common. Whey protein is a high biological value protein that is rapidly digested and is rich in branchchain amino acids (BCAA's) especially leucine. Some protein powders come with added carbohydrates, some are more rapidly digested, some have other added vitamins and minerals. The protein supplement you choose will depend on your training goals, taste preference, energy budget, training type and general diet.

Creatine

Creatine is a naturally occurring compound found in muscles that can be obtained through diet as well as being naturally produced by the body. Increasing stores by using creatine supplementation can potentially enhance fatigue resistance and improve performance during highintensity, activities lasting <30seconds with short recovery periods. People trying to increase lean muscle mass through resistance training, or involved in sprinting Supplementation involves a loading phase which can be done over a short (5 day) or slow (28 day) period and is followed by an ongoing maintenance dose. Individual response to creatine supplementation and those that have lower creatine stores to begin usually see the greatest response.

Caffeine

Caffeine works on your central nervous system and makes exercise "feel" easier by reducing your perception of effort and/or reducing your perception of fatigue.

Everyone has an individual response to caffeine but doses of between 1-3mg per kg body weight are enough to elicit performance benefits (E.g. 70-210mg caffeine for a 70kg person). Individuals participating in team sports, endurance sports or highintensity intermittent sports may benefit from taking caffeine before or during an event.

It is important to work out an appropriate dose for you as high intakes of caffeine can have a negative effect on performance by impairing fine motor skills (shakiness), causing anxiety or over-arousal, disturbing sleep and causing gastrointestinal issues.

It is important that you carefully consider the use of supplements and the source of your products. Not all supplements are tested for illicit or banned substances and products often contain ingredients that have unknown long-term effects.

Talk to a sports dietitian to find out more about supplements and the best product for you!



ANKYLOSING SPONDYLITIS AND EXERCISE

Ankylosing spondylitis (AS) affects up to two percent of the Australian population, where the prevalence of this condition is more common in men than women (3:1).

The onset of AS ranges from early 20s to 45 years of age and has a detrimental lifetime impact on the individual (Brown, 2009). AS is a form of chronic systemic inflammatory disease that mainly affects the axial skeleton. Individuals that are diagnosed with AS report, pain, stiffness and a significantly reduced mobility of affected joint(s) (Millner et al., 2016). These changes in axial mobility impair postural control, creates a kyphotic posture, increases the patients risk of falling, reduces pulmonary function, and increases their risk of CVD (Berdal, Halvorsen, van der Heijde, Mowe, & Dagfinrud, 2012; Millner et al., 2016; Vergara, O'Shea, Inman, & Gage, 2012).

The studies

Multiple studies (Gyurcsik, 2012; Millner et al., 2016; Vergara et al., 2012 Atlan, 2011) concluded that standing postural control is significantly altered in those diagnosed with AS and trunk stability and core muscle recruitment is impaired. Further research conducted by Mathieu, Gossec, Dougados, & Soubrier (2011) and Masiero et al., (2011) reported those with AS who engaged in 20-minutes of light aerobic exercise (walking, swimming and cycling) in conjunction with daily spinal mobility exercises have a reduced pain and improved function. It is suggested that a supervised exercise program is undertaken two times per week for three months, which consists of postural education, spinal mobility exercise and stretches. (Gyurcsik et al., 2012).

Exercise physiology and AS

Exercise has been proven (and well known) to play an important part in the management of AS in conjunction with appropriate anti-inflammatory medication. Exercise physiology is essential in facilitating and empowering patients diagnosed with AS to provide education, improve mobility, fitness and functional posture. Additionally, playing a role in preventing the rapid onset and management of structural deformities.

The aim of a tailored exercise program is to help alleviate patient's symptoms through improving spinal mobility, educating and teaching correct posture and improving postural stabilisation and breathing techniques, retrain poor muscular recruitment caused by changes in the disease state. Consistency seems to be key with AS management, performing a few exercises every day will help alleviate pain.

Due to the progression of the disease, balance and core stability exercise should be undertaken 2-3 x p.wk-1 under supervision to manage pain, improve spinal stability and decrease risk of a fall. Reported further by Millner et al., (2016) exercise prescription that is delivered one-on-one is paramount in ensuring that appropriate exercise is prescribed for patients to manage their disease state. The following table outlines appropriate exercise routine for AS patient.

Туре	Frequency	Intensity	Time	Aim
Exercise physiologist supervised exercise program	2 d.p.wk ⁻¹	Light -mod	45 minutes	Education, postural control, spinal mobilisation, stretching, core and balance
Home exercise program	Daily	light	10-20 minutes	Stretching and breathing exercises
Cardiovascular	3-5 d.p.wk ⁻¹	Light to mod (40-59% HRR)	20-30 mins	Breathing and good posture



Controlled breathing with spinal alignment

This exercise assists with posture and rib movement to optimise breathing capacity. If lying flat on the floor is to uncomfortable place a pillow under the head.

Instructions: Lie on your back with knees bent and neutral spine. Place hands on ribs and deeply breath, expanding ribs. Repeat 15 times.



Seated posture

Sit up tall on a chair or swiss ball with chest wide, chin in and thumbs pointing away from your body. Hold for 60seconds as comfortable. Repeat through the day.

This is great to wake up the core and upper back muscles which support the spine.



4 point core stability

This exercise improves core stability by engaging transverse abdominus and multifidus muscle which support the vertebrae.

Instructions: Assume 4 point position with hands underneath shoulders and knees under hips. In neutral spine position lightly draw up pelvic floor muscles, and lightly bring belly button to spine. Breathe for 20- 60 sec, perform daily.



Spinal extensions

This exercise help position the spine in extension, reversing the natural progression of AS.

Instructions: Lie on your tummy and slowly raise up on to your elbows. Breath and try to open up your chest and lengthen the upper back. Hold and breath for 5 breaths then lower. Repeat 2-5 times.



Lumbar flexion with thoracic mobilisation

This exercise helps mobilise the spine and thoracic area, which can become stiff with AS.

Instructions: Kneel, and place hands on a roller, raised object or chair.

Slowly lower your bottom towards your heels. Breath relaxing into the stretch 3- 5 times. Relax and repeat 2-5 times.



Lying thoracic rotations

We love these to help upper back mobility.

Instructions: Lie on your side, head supported and knees bent. Place top hand on your rib. Take a deep breath, then exhale opening your top shoulder to the ground. Repeat 5 times



Exercise 6. Total spine stretch

Lying on you back is one of the best way to realign your spine and reduce tension and assisting with kyphotic posture AS develops.

Instructions: Simply lie on your back in a comfortable position and breath. Place a towel under your head if required to help support the head. Hold for 1-3 minutes. Repeat daily.

Disclaimer: These are suggested exercises to help manage symptoms of AS, and may not be suitable for everyone. For personalised exercises please contact your local PACE Exercise clinic.

PACE , seeking to provide best practise for exercise prescription.

REFERENCES

Altan, L., Korkmaz, N., Dizdar, M., & Yurtkuran, M. (2011). Effect of Pilates training on people with ankylosing spondylitis. Rheumatology International, pp. 1–7. https://doi.org/10.1007/s00296-011-1932-9

Berdal, G., Halvorsen, S., van der Heijde, D., Mowe, M., & Dagfinrud, H. (2012). Restrictive pulmonary function is more prevalent in patients with ankylosing spondylitis than in matched population controls and is associated with impaired spinal mobility: a comparative study. Arthritis Res Ther, 14(1), R19. https://doi. org/10.1186/ar3699

Brown , M. (2009). How to Treat: Ankylosing Spondylitis and The Spondyloarthropathies. Australian Doctor 25-32. Retrieved from https://www.australiandoctor.com.au/cmspages/getfile.aspx?guid=ddf8099c-41a4-4467-af84-4cbb8b24aaf5

Gyurcsik, Z. N., András, A., Bodnár, N., Szekanecz, Z., & Szántó, S. (2012). Improvement in pain intensity, spine stiffness, and mobility during a controlled individualized physiotherapy program in ankylosing spondylitis. Rheumatology International, 32(12), 3931–3936. https://doi.org/10.1007/s00296-011-2325-9

Masiero, S., Bonaldo, L., Pigatto, M., Lo Nigro, A., Ramonda, R., & Punzi, L. (2011). Rehabilitation treatment in patients with ankylosing spondylitis stabilized with tumor necrosis factor inhibitor therapy: a randomized controlled trial. The Journal of Rheumatology, 38(7), 1335–1342. https://doi.org/10.3899/jrheum.100987

Mathieu, S., Gossec, L., Dougados, M., & Soubrier, M. (2011). Cardiovascular profile in ankylosing spondylitis: A systematic review and meta-analysis. Arthritis Care & Research, 63(4), 557–563. https://doi.org/10.1002/acr.20364

Millner, J. R., Barron, J. S., Beinke, K. M., Butterworth, R. H., Chasle, B. E., Dutton, L. J., ... Zochling, J. (2016). Exercise for ankylosing spondylitis: An evidence-based consensus statement. Seminars in Arthritis and Rheumatism, 45(4), 411–427. https://doi.org/10.1016/j.semarthrit.2015.08.003

Vergara, M. E., O'Shea, F. D., Inman, R. D., & Gage, W. H. (2012). Postural control is altered in patients with ankylosing spondylitis. Clinical Biomechanics (Bristol, Avon), 27(4), 334–40. https://doi.org/10.1016/j.clinbiomech.2011.10.016

USING A STANDING DESK



A standing desk, also called a stand-up desk, is basically a desk that allows you to stand up comfortably while working. Many modern versions are adjustable so that you can change the height of the desk and alternate between sitting and standing. These are referred to as height-adjustable desks, or sit-stand desks.

Although research is still in early stages, it does appear that using a standing desk can have impressive benefits for health. It may also increase productivity. At the very least, using this type of desk can partly negate the harmful effects of sitting too much.

Here are 6 benefits of using a standing desk that are supported by science.

1. Standing Lowers Your Risk of Weight Gain and Obesity.

While exercise is the most effective way to burn calories quickly, simply choosing to stand instead of sitting can also be beneficial.

- 2. Using a Standing Desk May Lower Blood Sugar Levels. Generally speaking, the more your blood sugar levels increase after meals, the worse it is for your health. Standing instead of sitting will help with this.
- **3. Standing May Lower Your Risk of Heart Disease.** It is widely accepted that the more time you spend sitting, the greater your risk of developing heart disease.
- **4. Standing Desks Appear to Reduce Back Pain.** Several studies show that standing desks can dramatically decrease chronic back pain caused by prolonged sitting.
- 5. Standing Desks Help Improve Mood and Energy Levels.

One study found that standing desks can lower feelings of stress and fatigue, while improving mood and energy levels.

6. Standing More May Help You Live Longer. Studies have found a strong link between increased sitting time and early death. This is not surprising given the strong association between sedentary time, type 2 diabetes and heart disease.





EXERCISE MISCONCEPTIONS DURING PREGNANCY



In the past women have been advised to avoid exercise during pregnancy. Today however, research tells us that exercise has many benefits that arise from preconception fertility enhancement to post natal rehabilitation. The American College of Obstetricians and Gynaecologists (ACOG) states that "you need to be physically active during pregnancy". It is a win-win scenario with benefits for both mother and baby.

The benefits include:

- > Increased fertility
- Decreased risk of gestational diabetes and postnatal depression
- Improved circulation, energy levels, posture, muscular tone and strength/endurance
- > Improved sleep patterns and reduced stress/anxiety
- > Reduced back pain and other common musculoskeletal conditions associated with pregnancy
- > Helps maintain a healthy weight range
- > Reduced labour time
- > Prepare the body for childbirth and improve postnatal recovery

The average pregnancy gains 10-15kg on the front half of the body. This causes a change in the body's centre of gravity, which has an effect on coordination, balance and posture. During this period a hormone is released to relax ligaments throughout the body in preparation for birth. When you combine an increase in weight with an increase in ligament laxity, we see 50% of pregnant women suffering from lower back pain. Research tells us that women who exercise throughout pregnancy experience less pelvic, shoulder and lower back pain. The increased fitness, pelvic floor and abdominal strength associated with an appropriate exercise program assists women with delivery and post birth recovery.

One out of two pregnancies exceed the recommended healthy weight gain leading to high-risk pregnancies, preeclampsia and gestational diabetes. Additional weight gain during pregnancy also contributes to post partum weight retention and an increase in associated health issues. Women who return to exercise within 6 months of giving birth are more likely to return to a healthy weight range. The most common complication throughout pregnancy and post birth remains post partum depression. Exercise increases the release of feel good endorphins, provides a sense of mastery, increases self-esteem, improves body image perception, provides a sense of achievement, as well as acting as a distraction from stressful stimuli.

Pregnancy is now defined as a time for behaviour modification. It is no longer seen as a period for confinement. Habits that are adopted during pregnancy

>> EXERCISE MISCONCEPTIONS DURING PREGNANCY CONTINUED

play a major role in shaping a woman's health for the rest of her life. With that said, it is important to follow professional guidance through this period to avoid any unnecessary issues. Throughout pregnancy, vascular changes cause an increase in resting heart rate, maximal heart rate and a decrease in blood pressure. Monitoring hydration, heat status, rest periods and changes in position is an essential component of exercise therapy. Throughout pregnancy women naturally develop a small abdominal separation as their belly continues to grow. Some exercises can put too much pressure on the abdominal wall and cause an irreversible divide in the abdominal wall called diastasis recti. Women often describe this as a "pouch" due to its appearance. Diastasis recti can make a natural delivery more difficult, cause lower back pain, constipation, urine leaking and offers very little protection for the organs lying under the skin. Exercises such as crunches, sit-ups, push ups and front planks, make abdominal separation worse. Trainers often prescribe these exercises without knowing the damage they may cause.

Exercise Guidelines

There are specific exercise guidelines to follow throughout each trimester of pregnancy. During all stages of pregnancy contact sports, high impact sports, heavy weight training and standing for long periods should be avoided. Women are encouraged to complete 2 muscle strengthening sessions per week using light weights and/or resistance bands, with 1-2 sets of 12-15 repetitions of up to 8-10 exercises. Aerobic activities such as walking, swimming, cycling etc. should be completed daily with 150-300 minutes accumulated throughout the week at a lowmoderate intensity. A more appropriate way to monitor exercise intensity during this period, is using Borg's Modified Rating of Perceived Exertion Scale (RPE). RPE should not exceed 4-6 (moderate exercise) throughout pregnancy. During moderate exercise you feel like you can exercise for hours, are breathing heavily, but can hold a short conversation. Women are encouraged to complete pelvic floor exercises throughout each trimester and post birth. A typical pelvic floor program involves 8-12 contractions 3 times daily, 4 times per week.

If any of the following symptoms are experienced during, or after exercise, stop and consult your doctor:

- > High heart rate
- > Dizziness
- > Headache
- > Uterine contractions
- > Vaginal bleeding
- > Amniotic fluid leakage
- > Nausea
- > Shortness of breath
- > Faintness
- > Back or pelvic pain
- > Decreased foetal movements
- > Sudden swelling of ankles, hands and face

First trimester

During the first trimester, while it may not look like you are pregnant, your baby is busy developing critical organs. During this phase it is important to avoid overheating by keeping exercise at a low-moderate intensity. Remaining hydrated and wearing lose fitting clothing are great ways to avoid overheating. The first trimester is the perfect time to begin pelvic floor, stability and postural control exercises.

- > Chariots
- > Double leg bridge
- > Pelvic floor

Second trimester

The second trimester is accompanied with a more noticeable increase in weight and change in posture. As the baby grows, more load is applied to joints, particularly the spine, pelvis, hips, knees and ankles and many women will begin to suffer from lower back pain. During this period it is very important to focus on strengthening the muscles that correct poor posture. From 16 weeks onwards exercising on your back should be avoided due to the increased risk of affecting blood flow to the baby.

- > Squat
- > Clams
- > 4 point row

Third trimester

Towards the end of the pregnancy some women begin to experience higher levels of fatigue. It is important to continue exercising, but at a reduced intensity within a comfortable range. As the baby continues to grow, even more pressure is placed on the joints and pelvic floor. This can affect posture and cause more aches and pains. Exercises should decrease pressure on the pelvic floor and joints by offloading movements on a swiss ball or in 4 point on the floor. Avoid exercises like lunges and wide squats due to the pressure placed on the pelvic floor.

- > Angry cat
- > Bird dog
- > SB chariots

Post birth

An appropriate exercise program post pregnancy has many benefits for women. Initially, exercise promotes recovery of important muscles affected by pregnancy, helps to regain the strength required to look after a new baby and to gradually return to pre-pregnancy activities. It also improves posture, sleep quality, muscle tone, social/ emotional support, enhances mood, reduces anxiety/stress and assists in preventing or treating postnatal problems such as depression, back pain or incontinence. Exercise should begin with gentle mobilising, stability, pelvic floor and core exercises. After 12 weeks gradually progress to more advanced posture exercises, strength movements and lastly high impact activities. Post pregnancy you no longer have the excess weight around the torso, however women assume new positions to breastfeed, lift and carry the baby. This must be recognised and posture particularly at the hips and shoulders should be assessed and corrective posture exercises prescribed as necessary.

PACE client Michelle said "Training while pregnant made me feel flexible, energetic, healthy and normal. As my pregnancy progressed and my weight increased, I felt strong and balanced because the exercise strengthened and balanced my body as my baby grew. This allowed me to keep surfing and working (massaging) right up until I was due. My labour was induced, however I made it through 8hrs of intense labour with just heat packs and rocking. I had no abdominal separation and my pelvic floor was strong to help deliver my baby. Post pregnancy I avoided incontinence troubles which I credit to exercising throughout pregnancy. I commenced exercise 6 weeks post birth, which was hard, but the rewards made it so worth it. I had to start with basic exercise for a few weeks to let everything heal and regain strength, which was disheartening but it led to me getting back to surfing and work much quicker then I could have imagined".



Our accredited exercise physiologists will help guide women through a suitable exercise program in a supportive and friendly environment. Every woman is different, and as a result, so are our exercise programs. We offer both individual sessions and 1:4 group based sessions.

References

Exercise during pregnancy and the postpartum period. International Journal of Gynecology & Obstetrics. 2002 Apr;77(1):79–81.

Artal R. Guidelines of the American college of Obstetricians and gynecologists for exercise during pregnancy and the postpartum period. British Journal of Sports Medicine. 2003 Feb 1;37(1):6–12.

Brukner P, Khan KAA. Clinical sports medicine Third revised edition (sports medicine series). 3rd ed. Roseville, N.S.W.: McGraw-Hill Medical; 2009 Aug 8. ISBN: 9780070278998.

DALEY A, MACARTHUR C, WINTER H. The role of exercise in treating Postpartum depression: A review of the literature. Journal of Midwifery & Women's Health. 2007 Jan;52(1):56–62.

Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression. Obstetrics & Gynecology. 2005;106(5, Part 1):1071–83.

Olson G, Blackwell SC. Optimization of gestational weight gain in the obese Gravida: A review. Obstetrics and Gynecology Clinics of North America. 2011 Jun;38(2):397–407.

Royal College of Obstetricians & Gynaecologists. Exercise in pregnancy (statement no. 4) [cited 20 July 2016]. Available from: https://www.rcog.org.uk/en/guidelines-research-services/guidelines/exercise-in-pregnancy-statement-no.4/.

Sports medicine Australia [cited 25 August 2013]. Available from: http://sma.org. au/resources-advice/policies-guidelines/active-women.

Siega-Riz AM, Viswanathan M, Moos M-K, Deierlein A, Mumford S, Knaack J, Thieda P, Lux LJ, Lohr KN. A systematic review of outcomes of maternal weight gain according to the institute of medicine recommendations: Birthweight, fetal growth, and postpartum weight retention. American Journal of Obstetrics and Gynecology. 2009 Oct;201(4):339.e1–339.e14.

ACTION PLAN & HOME EXERCISE PROGRAM

Do your goals need a health check?

Why not sit down with one of our accredited exercise physiologists to put together a specific Action Plan & Home Exercise Program, to work towards your goals in the most effective way!

		ME EXERCISE PROGRAM	G Pace
	- 8	rsiologist:	Date:
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Exercise Physiologist: KEY FINDIN			

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WELLNESS DIARY

Have you got a copy of our new Wellness Diary?

If not, why not try cutting out this page and recording food, alcohol and water intake for the week. You can also rate your sleep, mood, energy/ fatigue and any pain levels. We use these to track your progress and ensure you are working towards your healthiest self.

	FOOD DIARY	WATER	EXERCISE					
	Breakfast:		Rating	1	2	3	4	5
Mon	Lunch:	0000	Sleep					
	Dinner	$\triangle \triangle \triangle \triangle$	Energy					
	Snacks:		Pain					
	Alcohol:	0000	Mood					
TUE	Breakfast		Rating	1	2	3	4	5
	Lunch:	0000	Sleep					
	Dinner		Energy					
	Snacks:		Pain					
	Alcohol:	0000	Mood					
WED	Breakfast		Rating	1	2	3	4	5
	Lunch:		Sleep					
	Dinner		Energy					
	Snacks:		Pain			-		
	Alcohol:	0000	Mood					
THU	Breakfast		Rating	1	2	3	4	5
	Lunch:		Sleep					
	Dinner	0000	Energy					
	Snacks:		Pain			-		
	Alcohol:	0000	Mood				_	
FRI	Breakfast		Rating	1	2	3	4	5
	Lunch:		Sleep			-	-	
	Dinner	0000	Energy			-		
	Snacks:		Pain					
	Alcohol:		Mood					_
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STROKE Exercise Rehabilitation

A stroke or cerebrovascular attack (CVA) is a neurological defect resulting from a cardiovascular cause whereby the blood flow to the brain is compromised, resulting in rapid loss of brain function lasting for 24 hours or more. There are two types of stroke; 87% are ischemic (blockage from a thrombosis or embolism) and 10% are haemorrhagic (caused by a ruptured blood vessel in the brain).

A stroke will often lead to physical, neurological and emotional problems that can be long lasting, with only 26% of all stroke victims recovering to their pre-stoke health and function.

The impairments of a stroke can be debilitating, and may include:

- > *Hemiparalysis* or problems with motor control, where usually only one side of the body is affected.
- > *Sensory disturbance:* Stroke survivors may lose the ability to feel pain, touch, and temperature.
- Speech disturbances: Impairments with speech and processing language (aphasia)
- Gait disturbances: The body's reduced ability to coordinate movements (ataxia)

In Australia, the statistics of a stroke are alarming with 1 in 6 people expected to suffer a stroke in their lifetime. Unfortunately, a stroke is a direct by-product of modern society's sedentary lifestyle habits, including poor exercise and diet habits that are all modifiable risk-factors.

Those at most risk of a stroke include people with:

- Cardiovascular disease (hypertension, elevated cholesterol levels)
- > Coronary artery disease
- > Type 2 diabetes mellitus
- > History of alcohol and cigarette smoking

At PACE, we see a number of stroke victims referred into our clinics for exercise rehabilitation to re-gain their physical function and improve their quality of life.

The aims of an individualised exercise program include:

- > Improved functional capacity
- > Gait retraining
- > Improved mobility and motor control
- > Reducing risk of co-morbidity and subsequent stroke

Please see below for an example of an exercise rehabilitation program:

Туре	Why?	Example:
Cardiovascular exercise	Aim at reducing co-morbidity risk, Improving aerobic capacity	Walking, bike, arm ergo
Resistance training	To fight the effects of muscle atrophy, and to strengthen the affected side of body.	Dependent on individual. Free weight exercises, machine weight exercises.
Flexibility training	Stretching the muscles to combat spasticity and contracture of tight muscles affected	Dependent on individual: seated and standing stretches
Neuromuscular control training	To improve balance and motor control, coordination and cognitive ability to move. To improve safety of normal daily tasks.	Balance exercises, proprioception exercises, coordination tasks.

Q&A *with* ANDREW

Why did you first come to Pace?

I was referred to PACE (Ben Southam) from Peter Mac Exercise Physiology Department following treatment for multiple myeloma. The treatment included high dose chemotherapy followed by an autologous stem cell transplant. During this treatment I lost about 10% of my body weight that would have mainly been muscle mass. It was explained to me that an important part of my treatment would be to exercise. This meant simple things to start with and building up as my fitness and muscle development increased.



What changes have you noticed since starting at PACE?

When I started I was about 68 kg. Aerobic exercise would typically make me dizzy. I was arm curling 2 kg weights. In twelve months I have put on 5 kg. I am curling 15 kg weights and it is very unusual to experience any dizziness. I feel much more confident with doing normal daily activities. I was taking oxycodone painkillers daily, which I no longer take.

What barriers have you faced (if any)? How have you overcome these barriers?

My barriers were my body recovering from both myeloma cancer and crush fractures in three vertebrae. The myeloma makes bone brittle so I needed to be careful not to cause more damage. The damage to my spine caused limits to back exercises. As the treatment I had was very successful, in that I am in complete remission from any myeloma, my bone structure has repaired itself over time. As far as exercise went, it meant starting small, but making sure I was consistent in doing my sessions. Ben was able to fairly quickly identify what I could do and he was very good at increasing my output over time.

What are your goals for the next 6 months?

When I started with Ben I said to him I wanted to be able to lift a 20 kg weight and swing a golf club again. I have succeeded with the 20 kg weight but I still do not feel completely confident in playing golf. I think I could do this within the next six months. I also feel that keeping my muscles working will help the cramping I experience.

What advice would you give to someone in your situation?

I couldn't encourage someone in my situation enough to undertake an exercise program. I would also highly recommend doing it in a class environment. I found I was concentrating so hard on everything required to treat my myeloma that I needed the discipline to attend regular sessions or else exercise would be put off. Every health care person who has treated me has given every encouragement to exercise, saying it is likely to aid recovery and I feel I am reaping the rewards of having done some hard work.

METABOLIC CONDITIONING

Metabolic conditioning involves structured periods of work and rest to maximise calorie burn and increase metabolic rate during and after exercise. The work periods are highly demanding on the cardiovascular and energy systems of the moving muscles in order to keep on meeting the requirements of repeated exercise efforts. Metabolic conditioning has been shown to improve recovery, lower resting heart rate, decrease body fat, improve sleep, improve general fitness levels, increase power, increase anaerobic capacity (or lactate threshold) and decrease muscle fatigueability.

The aim of metabolic conditioning is to manipulate specific variables that change the way our body adapts to the exercise session and improve the delivery of blood from the heart to the working muscles. We can manipulate intensity, rest periods, exercise selection, sets, reps and time under tension. By altering one or two of these variables we can target different metabolic pathways and improve metabolic efficiency.

Many populations can reap the benefits of this particular form of exercise. Athletes can utilise metabolic conditioning to improve performance of energy systems, increase power, decrease fatigue and maintain appropriate weight range. Healthy individuals can utilise metabolic conditioning to improve fitness levels and maintain a healthy weight range. Metabolic conditioning is particularly powerful in individuals diagnosed with heart failure, metabolic syndrome, coronary artery disease and hypertension, as it has shown to improve cardiac function and decrease cholesterol and blood pressure. The bonus for all populations is that metabolic conditioning is very time efficient, getting more bang for your buck and it requires less time exercising!

Metabolic conditioning can be used at home or in the gym setting.

GYM: try combining 30 seconds of rope whips with 30 seconds of rest for 6-8 rounds. Another option is to use a bike, x-trainer or treadmill and sprint as fast as you can for 40 seconds, followed by a slow recovery for 20 seconds.

HOME: Implementing metabolic conditioning at home is easy using stairs, a skipping rope or a medicine ball. Try a variety of intervals including 20sec work:10sec rest, 30sec work:30sec rest or 40sec work: 20sec rest.



Q&A *WITH* FAITH

Why did you first come to Pace?

On referral from an osteopath I was seeing. I had sprained my lower back pretty badly over the Christmas holiday break which had me laid up for weeks, not fun!. That immobility was doubly tough considering that I had two little people depending on me. After a few discussions with the osteo she mentioned that her role in getting me better was more of an immediate band aid approach. She said that I needed an exercise physiologist to help me build the strength in my lower back to recover from injury and get stronger to prevent it from happening again ... Plus I loved the thought of getting active, it had been a while...



What changes have you noticed since starting at PACE?

So many, my back is feeling even better than it did pre injury and I have learnt so many tips on how to carry myself properly, lift and bend in the right way. All the physical stuff aside I feel a positive mood shift too. Sustaining a back injury is down right debilitating and I was pretty deflated, depressed yep I was that too. I now feel stronger and happier as a result of working with Ben at Pace. I've even conned my husband into joining me, it's great fun doing something for myself with him sweating it out next to me.

What barriers have you faced (if any)? How have you overcome these barriers?

We had a little flare up with my back about 7 weeks ago and I thought I was back to a zero starting point. It was a pretty scary time but Ben got me back on track pretty quickly which was great and my recovery from that little injury was faster as a result.

What are your goals for the next 6 months?

Run.. I was to be able to run over the Christmas holidays and this time not injure myself... All that Christmas 'cheer' needs to be burnt off somehow and running in the summer sun is one of my favourite things to do. 5 km run is all I need a few times a week to satisfy that 'runner's high'..

What advice would you give to someone in your situation?

When you feel weary as a result of injury or you want some guidance on how to start exercise without injuring yourself then PACE is the place for you. The Staff are attentive, knowledgeable and empathetic. The perfect balance in getting you moving in the right way for a stronger, healthier and better YOU. I can't thank Ben enough for his help, guidance and motivation in getting me and my back on the right path.



START TAKING THE RIGHT STEPS TO VALUE YOUR MIND. EXERCISE CAN HELP COMBAT DEPRESSION AND THE EFFECTS OF MEDICATION



YOU'RE NEVER TOO OLD TO START FEELING YOUNG AGAIN.

DID YOU KNOW EXERCISE CAN

- Reduce the amount of fatal heart attacks by up to 50%
- Help you recover from cancer treatment quicker
- Improve the breathing of those with lung disease by 70%
- Reduce the risk of type 2 diabetes by almost 60%
- Help combat depression and the effects of medication
- Improve recovery rate after surgery
- Reduce the pain and increase movement of those with osteoarthritis
- Help manage your chronic pain

LET AN ACCREDITED EXERCISE PHYSIOLOGIST SHOW YOU HOW EXERCISE CAN MAKE YOU FEEL STRONGER, FITTER AND HEALTHIER.



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