

fitness

HIS EDITION

THE
PEAK

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ISSUE**

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The truth about Taurine

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BUGGING OUT

IS INSECT PROTEIN THE
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EARN MORE AS
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TRAINER

SHARPEN UP

SHOULDER WORKOUT

BACK TO BASICS FOR SERIOUS DELT DEMOLITION



R. Keny

2ND MR. OLYMPIA 2016 •
4TH BEST MALE PHYSIQUE MR. OLYMPIA •
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www.team360health.com.au
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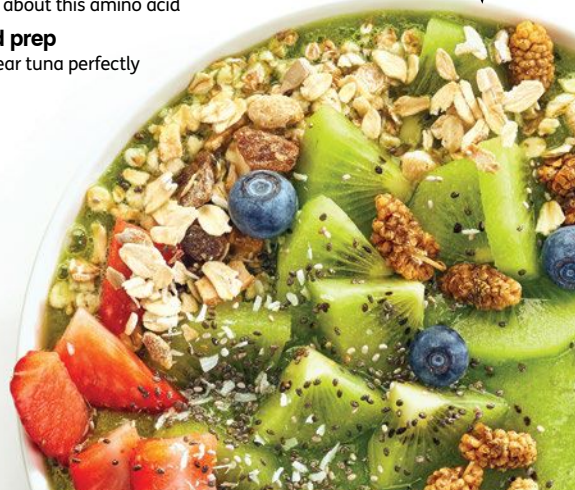
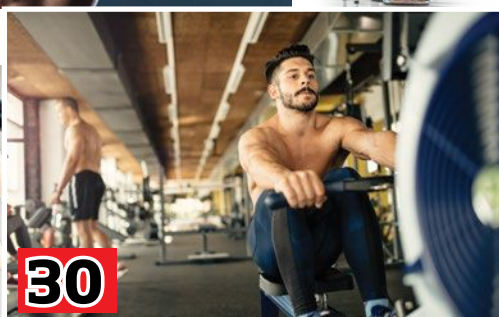
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THE FARMACY



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IMAGE BY JETLINE ACTION PHOTO

EXERCISING IS A PRIVILEGE

During one of my runs around my neighbourhood during the December holiday period I had an encounter that has forever changed my perspective, both about life and about exercise.

A few kilometres into a route I commonly run, I came upon a waste picker who was struggling to pull his flatbed trolley, which was laden with empty plastic bottles and other recyclables, up a hill – he literally lacked the energy to pull this relatively light load up a short but steep incline. I, on the other hand, was full of energy from the many overindulgent festive season meals I had enjoyed with friends and family. As I passed him, he asked if I wouldn't mind helping as he was really struggling (I wish I had been a better person by offering to help before he asked, but unfortunately I lacked such altruism, ironically during the season of giving). I'm pleased to report, though, that I redeemed myself somewhat by not hesitating to pitch in to help push the trolley to the top of the hill. Unfortunately I had no money nor food with me to offer him at the time.

Once at the top of the hill, he thanked me for my help, wished me a blessed Christmas and then set off, freewheeling down the other side on his trolley. I headed off in a different direction to conclude my run. As I covered the remaining kilometres, I had plenty of time to replay the incident in my mind and I was struck by the extreme contrast in our situations. I realised that in a country (one could argue world, too) where there is such income disparity and inequality, the ability to choose to exercise for your health or to train to achieve a sports-related goal is a privilege and one that we should never take for granted. There are so many people out there

"Next time you're out training or working out in the gym, take a moment to acknowledge how lucky you are to be able to choose to be active, because there are so many millions of people out there who aren't afforded the same privilege in life."

who lack the means to even fuel their basic daily activities, let alone indulge their desire to run a marathon or improve their physique. It is a sad reality of life, but one that will persist. It's also easy to miss this truism amidst the humdrum of everyday life as we're often consumed by our own perceived problems and challenges. So next time you're out training or working out in the gym, take a moment to acknowledge how lucky you are to choose to be active, because there are many millions of people out there who aren't afforded the same privilege in life.

With this stark realisation still burning in my mind, when I got home I grabbed some food from the fridge and took a drive to try and find him to give him a meal, but sadly I couldn't. There were, of course, many other less fortunate human beings along the road to whom I could give the meal, which I duly did.

Following that interaction I've been left with an overwhelming feeling of gratitude that I'm able to chase my ambitions of running faster times at races, however superfluous those ambitions may be in the bigger scheme of life.

It also saddens me to think that there are so many people out there who have the ability, opportunity and privilege to expend energy in any manner they choose, but prefer to remain inactive and simply continue to gorge themselves with food. But, as you're reading this magazine, I doubt you're one of them...

With that, next time you're hurting and cursing during a run, ride or gym session, doing an activity you chose to engage in voluntarily, I urge you to think back to this letter and consider your circumstances. Realise how lucky you are to be in that position, because you can be sure that someone, somewhere at that very moment in time is also struggling, although he isn't doing it by choice; he is doing so merely to survive.

Enjoy issue 28.

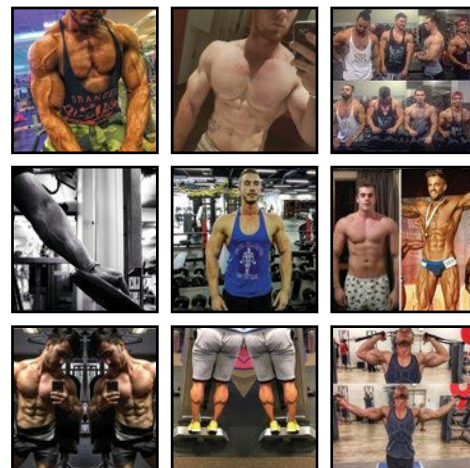
PEDRO VAN GAALEN
Editor

@PedrovanG @pedrovang

(P.S. Please don't confuse the concepts of privilege and gratitude with that of being #blessed. The idea that some higher power has deemed you worthier than another person, for whatever reason that may be, and that opportunities, rewards and success have been bestowed on you, is an utterly repugnant notion in my opinion.)

In case you missed it...

WHAT READERS HAVE BEEN UP TO ON INSTAGRAM



BUILD A BETTER BODY WITH THE SMITH MACHINE



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On the cover..



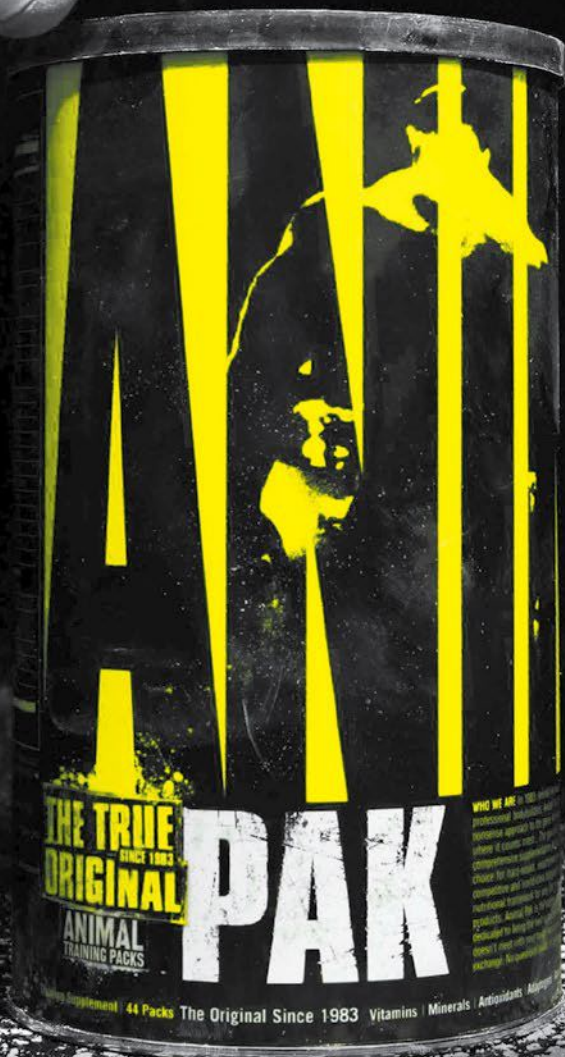
#ONTREND IN THIS ISSUE: INSECT PROTEIN, SPORTIFICATION, & FOOD AS MEDICINE.



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ALWAYS WITHIN REACH

The Animal history is a tale of hard work and uncompromising commitment to excellence spanning four decades. Growing from a small operation in Jersey to the company the best lifters in the world depend on for the tools their goals demand. We're proof that when you apply old school values, the extraordinary becomes tangible. These lessons are what you live every day in the gym. You put your head down and pay dues. And a day at a time, your aspirations become more real. All along the way, Pak is there—providing the foundation upon which you can build something great. In your gym bag, at the training table, Pak remains. Like your dream, always within reach.



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BE BELIEVABLE!

They say that change is inevitable, unless you're standing in front of a vending machine. I couldn't agree more, but to be honest it's hard to accept change and it isn't always easy to adapt to changes that you don't agree with.

Life is constantly evolving, though, and so is business. If you're an athlete, believe it or not, you're a self-sustainable business and brand within yourself and you must adapt or you'll simply fade away.

In this regard, a major point of contention I would like to ruminate on a little – something that I feel has no reason to change with the times or to evolve as much as the sport or supplements or ideals do – is our humility.

Social media allows us to promote ourselves to potentially millions of people across the globe. This basically puts a microphone in front of us and allows everyone to be heard, good or bad. But social media doesn't make you a better person. It merely amplifies your character traits. We've evolved from a humble industry to a massively self-righteous, self-absorbed and entitled one, and it's not the direction in which we should be moving.

Many athletes now jump from brand to brand, coach to coach, and clothing sponsor to clothing sponsor – it's unacceptable. Those who own the big brands in this country watch social media and see this behaviour. Jumping

“They say that change is inevitable, unless you're standing in front of a vending machine. I couldn't agree more.”

brands also earns you a label of “unbelievable” in the minds of consumers. And once you become unbelievable you're no good to a sponsor because consumers merely brush you off as a brand hopper who lacks any credibility when you promote a brand or product.

If you intend on building a career as a reputable, sought-after individual in this industry, in the hopes of receiving support from big brands, then you need to evolve into an individual who is believable and respected. If not, you might achieve success as an athlete, but you'll never reap the rewards and benefits of being a top brand ambassador, with a support team behind you that will take you places you never could have gone on your own.

The choice, inevitably, lies with you. In my mind it all boils down to one simple goal in life – be a good person. You can't buy character, and becoming a sought-after and influential individual comes from hours and hours of honing your personal craft and constantly seeking to inspire and give back to those around you. Those who just take and remain self-serving are forever doomed to fail. So give more, do more and be more!

Enjoy issue 28

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MUST READ



fitness 11th EDITION

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TRITRavel HUB REMOVES TRAVEL TROUBLES FOR MULTI-SPORT ATHLETES



TriTravel Hub is a Cape Town-based travel concierge service focused on supporting athletes with the logistics of travel and transport for themselves and their equipment to multi-sport events across South Africa. The TriTravel Hub team aims to take care of athletes' logistical needs professionally and personally; from bike and equipment transport, airport transfers and accommodation, to post-race hospitality, enabling them to focus 100% on a successful race. **TriTravel Hub offers athletes and their families the following services:**

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- Confirmed bookings in hotels, lodges and guest houses across a variety of price bands;
- Bike and equipment transport;
- Special needs boxes for accessories including helmets, wetsuits, nutrition, tubes, spares and other items to be transported along with bicycles;
- Post-race massages;
- Shuttle services and airport transfers;
- Post-race hospitality;
- Restaurant reservations.

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POWER UP

FACTS, FIGURES, NEWS AND INFO FOR THE FITNESS ENTHUSIAST

TOP READS THIS MONTH



REAL MEAL REVOLUTION: BANTING 2.0

By Jonno Proudfoot

Following the success of bestsellers The Real Meal Revolution and Raising Superheroes, Real Meal Revolution: Banting 2.0 is a holistic approach to making

the switch from a high-carb, low-fat diet to one low in carbs and higher in healthy fats (LCHF). The book covers the evolution of the LCHF revolution, offering a streamlined, accessible, easy-to-read review of what Banting means and how to approach LCHF eating in the most effective way possible.

R169 www.loot.co.za



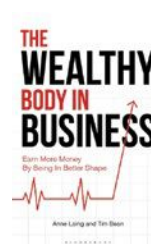
ON YOUR BIKE

By Chris and Tim Whitfield

Keen to get out there and get fit on your mountain bike, but lack the time or motivation? Seasoned journalists and MTB riders Chris and Tim Whitfield will help you turn your

weekend-warrior dreams into reality with tips on cool trails, events and advice on everything from equipment and safety, to MTB lingo and fashion. This fun handbook – packed with maps and tips – is your indispensable guide to getting you on your bike and out into the fresh air.

R199 www.raru.co.za



THE WEALTHY BODY IN BUSINESS: EARN MORE MONEY BY BEING IN BETTER SHAPE

(Kindle Edition)

By Tim Bean and Anne Laing

People who are out of shape crumble under the load and fade under the pressure of

business. This book offers a guide and insights to the most successful strategies, tips and best practices used successfully with the authors' private clients at the pinnacle of business. Aimed squarely at high-performing individuals who want to age better, have more energy, sleep better, stress less, think smarter, feel healthier, work better, and want to be on top of their game to succeed in business.

\$12.53 www.amazon.com



COURSE DATES

JOHANNESBURG

- 4 Mar – Group Exercise Instructor
- 4 Mar – Sports Massage
- 4 Mar – Boxing level 2
- 10 Mar – Exercise is Medicine 2
- 17 Mar – Exercise is Medicine 3
- 25, 26 Mar – Bootcamp workshop
- 29 Mar – Personal Fitness Trainer

CAPE TOWN

- 4-5 Mar – Exercise and pregnancy
- 11 Mar – Sports Massage

Visit www.fitpro.co.za for more info or email fitnesspro@fitpro.co.za for bookings.

APP OF THE MONTH

THE ROBARDS METHOD

The Robards Method App is a fitness programme designed to help you build your best body. With over 125 power, strength and rings workouts, the app will guide you to your goals, no matter what your fitness level. Whether you want to lose weight, gain strength and definition, or work out like an elite athlete, start The Robards Method at your level with five different entry points into the programme. **Available on the App Store, Free**



STRAIGHT OUTTA LA. THE ROCKOUT WORKOUT.

MATRIX FITNESS SA LAUNCHES HOME FITNESS RANGE

Matrix Fitness SA recently announced the launch of its new home range of cardio fitness equipment. Previously available only in a gym or club setting, users can now experience the dynamic performance and uncompromising design of Matrix products from the comfort of their own home. Optimised for the home environment, the Matrix home range offers the same durability, performance and industry-leading technology that fitness enthusiasts love about Matrix's club equipment. With a compact design, the machines fit comfortably in the home workout space, and the styling of the industrial design makes home fitness equipment look attractive. Three different intuitive consoles give users choices, whether they're looking for an advanced experience that includes access to their favourite apps, social media, premium entertainment, virtual journeys and much more, or a simple display with accurate, easy-to-read feedback that tracks heart rate, distance, watts and other workout metrics. **To view the range, visit matrixfitness.co.za**



BODY20 ADDS NEW LOCATIONS

The charge of electro muscle stimulation (EMS) training continues, with Body20 EMS Studio leading the way with the opening of two new locations. Body20 Southdowns opened in February, with the launch of Body20 Glenashley in Durban hot on its heels in March 2017. The company is still offering additional franchise opportunities to health and fitness professionals and entrepreneurs who are looking to own their own business. **Interested parties can book a seat at the next Body20 franchise presentation by visiting www.body20.co.za/key-activations or emailing franchise@body20.co.za.**

POUND YOUR BODY AT VIRGIN ACTIVE

Virgin Active South Africa recently announced the launch of Pound®, a new workout concept that takes drumming to a whole new level. Using Ripstix®, which are lightly weighted drumsticks engineered specifically for exercising, Pound® transforms drumming into an extremely effective and unique full-body workout where, instead of listening to music, you become the music! Pound® is a combination of cardio, conditioning, and strength training with yoga and Pilates-inspired movements. Pound® launches in March 2017 and will be available at select Virgin Active Health Clubs. **Visit www.virginactive.co.za for more info.**



SAVE R450

ON YOUR SUPPLEMENT SHOPPING. ON A WIDE RANGE OF BRANDS AND PRODUCTS

GET YOUR COUPONS ON PAGE 17

THIS MONTH'S SPECIALS

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R50 OFF SSN WHEY PROTEIN 1000G <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>	R70 OFF BIODEN LEAN GAIN ALL-IN-ONE 4KG <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>
R60 OFF OPTIMUM GOLD PRE-WORKOUT 30 SERVINGS <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>	R60 OFF EVONX 3DT2 100G <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>
R30 OFF BIODEN CREATINE ULTRA HCL 100G <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>	R80 OFF MUSCLETECH NITRO TECH 30G <small>Offer valid from 27 February to 23 April 2017 at all Dis-Chem stores. See product for full details, terms and conditions. Offer not valid for online purchases. In the event of disputes, Dis-Chem reserves the right of final decision.</small>

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EVENTS CALENDAR

2017 REEBOK CROSSFIT GAMES

The Open is the first stage of the CrossFit Games season and is the largest community event of the year. Workouts are released on Thursdays at 5 p.m. PT, and athletes have four days to complete the workout for the week and submit their score. Athletes can complete the workouts at a CrossFit affiliate with a judge, or film it from anywhere in the world and submit a link as proof. At the end of five weeks, the fittest move on to the next stages of competition: The Regionals and The Online Qualifier.

Dates:

17.1: Feb. 23 - 27

17.2: March 2 - 6

17.3: March 9 - 13

17.4: March 16 - 20

17.5: March 23 - 27

Visit Games.CrossFit.com to sign up and log your score each week.



THE WARRIOR RACE SERIES

The Warrior Race is South Africa's largest obstacle course race (OCR) series. It incorporates trail running with various physical challenges in the form of obstacles. The Toyota Warrior, powered by Reebok series, offers athletes from different sporting codes the opportunity to compete against one another, with eight events held in four provinces, each consisting of three different race distances.

Toyota Warrior event #2

Date: 11 March 2017

Venue: Emerald Resort & Casino, Vanderbijl Park, Gauteng

Toyota Warrior event #3

Date: 22 April 2017

Venue: Van Gaalen's Cheese Farm, Hartebeespoort, North West

Enter now by visiting www.warrior.co.za

CELL C AFRICANX TRAILRUN

South Africa's premier three-day trail run stage race, the Cell C AfricanX Trailrun presented by Asics will once again take teams of two (male/female/mixed) over breath-taking scenic routes in the the Overberg region of the Western Cape that vary in distance from 22km to 34km each day.

Date: 17-19 March 2017

Venue: Festival Village, Houw Hoek Inn, Western Cape

To enter visit www.stillwatersports.com and stay up to date by following @runtheafricanx on Twitter.

CAPE TOWN CYCLE TOUR

In 2017 the Cape Town Cycle Tour will celebrate its 40th event, which will see 35,000 cyclists line up in Hertzog Boulevard to tackle the spectacular 109-kilometre loop of the Cape's peninsula. The Cape Town Cycle Tour is the fourth and final event in the annual Cape Town Cycle Tour Lifecycle Week – a week-long celebration of cycling, healthy lifestyles and outdoor sporting fun in one of the world's most scenic destinations.

Date: Sunday, 12 March 2017

Venue: Cape Peninsula

For any event queries, visit www.capetowncycletour.com. Keep up to date with developments by liking [cycletour](#) on Facebook or by following @CTCycleTour on Twitter and Instagram.

IMPI DAY-NIGHT SERIES

The new Impi Day-Night series is an exciting 5km obstacle trail run where athletes can compete against the leader board for the event and ultimate series win.

Impi Challenge Day Night Series #2

Date: 24 March 2017

Venue: Killarney Golf Club, Johannesburg, Gauteng

Impi Challenge Day Night Series #3

Date: 7 April 2017

Venue: OCT Rietveld, Pretoria, Gauteng

For more info or to enter, visit www.impichallenge.co.za

ASHBURTON INVESTMENTS NATIONAL MTB SERIES

This seven-leg national marathon mountain biking series is held in six provinces, at venues that are unique with breath-taking trails, from the lush forests in Sabie to the spectacular sandstone mountains in Clarens and the picturesque vineyards in Grabouw. The National MTB series is also a drawcard for established riders who are looking to tackle the best and most exquisite riding trails throughout the country.

Event #3

Date: 8, 9 April 2017

Venue: Town Square, Main Street, Clarens, Free State

Visit advendurance.com/nationalmtbseries for more info to enter.



THE IMPI CHALLENGE

The Impi Challenge is an event like no other because it combines trail running, obstacles, mud and fun in an action-packed race that caters for athletes of all fitness levels, as well as families and kids, and beginners looking for an unforgettable experience. All events include a best dressed competition.

Event #1 Impi CPT

Date: 8-9 April 2017

Venue: Coetzenberg Sports Complex, Stellenbosch, Western Cape

Event #2 Impi KZN

Date: 13 May 2017

Venue: Virginia Trails, Eston, KwaZulu Natal

For more info or to enter, visit www.impichallenge.co.za

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ASK THE EXPERTS

» Question was answered by Mario van Biljon and Pedro van Gaalen

TIRED OF THE 'ECTO' LIFE

Q After reading about the benefits of supplements in your magazine, I finally got the courage to use protein powders. I was therefore hoping you could assist me with additional info that could help me overcome my ectomorphic issue. What are the best powders, workouts and advice for hard gainers? **Jono**

A The quest to add significant muscle mass to any frame is one of the hardest tasks facing gym-goers, but this can often seem impossible for ectomorphs – those commonly referred to as hard-gainers. The physique of an ectomorph has little fat or muscle and they are slim, often underweight, and find it hard to pick-up and maintain weight. And while the science

behind mass building is simple – consume more quality calories than you burn each day – current trends and information around dieting approaches can often complicate the matter. Most recently, the importance and role of carbohydrates in our diets has been brought into question, yet it remains one of the most important macronutrients in any serious mass-building plan.

CARB-CENTRIC EATING

The reason for this is that carbohydrates provide the most readily available form of energy, known as glycogen, which fills your muscle cells and fuels your intense weight training sessions. The fact is, the mass-building process requires energy, and a lot of it. Carbs also help the anabolic process.

Ectomorphs also require the greatest gains in body mass, yet they tend to metabolise carbohydrates faster, which is why you will generally find that mass-building meal plans and supplements are rich in carbs and protein, with moderate amounts of fat.

The trick is to choose the right types of carbs. Complex and high molecular-weight carb (HMC) sources are the best suited to deliver the calories and energy required to build prodigious muscle mass. Molecular weight refers to the mass of one molecule of a substance, which means HMCs are essentially made up of very large, heavy molecules. HMCs such as Vitargo are typically made from waxy maize starch and are rapidly digested and absorbed into the blood. This is important after exercise because consuming carbs at this time blunts cortisol levels, prevents muscle


breakdown and raises insulin levels to help promote muscle growth and replenish muscle glycogen levels.

As such, a number of modern mass builders contain HMCs, along with high levels of protein, often supplying around 500 calories per serving. In addition to a decent serving of protein, mass builder shakes sometimes have added fats, too, to pack as many calories as possible into a serving. You can further boost the calorie content of these shakes by adding healthy and nutritious calorie-dense foods to your shake. This may include Greek yoghurt, natural peanut butter, nuts or bananas.

Consuming a serving or two of a quality mass builder in addition to your daily meals ensures your body will have all the protein, carbs and calories needed to fuel muscle growth. Mass builders are also helpful as eating sufficient calories to fuel muscle gain is not easy to accomplish through a whole-food, healthful diet alone. Consuming a serving or two of a quality mass builder, in addition to your daily meals, ensures your body will have all the protein and calories needed to pack on the mass.

The most important times of the day to use these high-carb, high-protein supplements are around training and first thing in the morning. The use of pre- and intra-workout shakes that contain good sources of HMCs and amino acids (especially BCAAs) are best suited around workouts as they provide highly bioavailable carb and protein sources to fuel your workout, while a mass builder after a workout replaces lost glycogen stores and starts the anabolic rebuilding process. The early-morning mass builder also kickstarts the anabolic process after the night-time fast, limiting muscle loss and replenishing energy stores. In addition, a good night-time casein protein, with its slow release of amino acids, is another important element in the nutritional strategy of any hard-gainer.





"USE A BLENDED OR WHEY-BASED MASS BUILDER BEFORE AND/OR DIRECTLY AFTER TRAINING, AND A CASEIN-BASED PRODUCT BEFORE BED. A BLEND IS BEST FOR FIRST THING IN THE MORNING."

MASS BUILDER OVERVIEW

With this in mind, look for the following elements when purchasing your next mass builder:

■ **PROTEIN CONTENT:** A single serving should supply a dose of 30-45g of protein.

■ **MACRONUTRIENT RATIOS:** Look for a product that supplies around 50% of calories from carbs, 30% from protein and no more than 20% from fat.

■ **PROTEIN SOURCES:** Most mass builders are formulated with a blend of protein sources. Each protein source has inherent strengths and weaknesses and, as such, blending various protein sources together generally results in a more balanced and complete amino acid profile. The final blend generally has a higher biological value than most individual protein sources as well. Use a blended or whey-based mass builder before and/or directly after training, and a casein-based product before bed. A blend is best for first thing in the morning.

■ **LACTOSE CONTENT:** Many mass builders on the market make use of skim milk powder as a source of both carbohydrates and protein

(casein and whey). Skim milk is a great functional ingredient as it serves as a cost-effective source of high-quality protein and also helps enhance the flavour and solubility of the final product. However, the only problem with skim milk powder is its lactose content. Many individuals do not produce enough of the lactose-digesting enzyme called lactase to break down all the lactose in supplements that contain skim milk. The result is that the breakdown and fermentation of excess lactose is left to microbes naturally present in the digestive tract. The result is often gas, bloating, stomach cramps and diarrhea. If you are lactose intolerant then a lactose-free formula may be the better option.

■ **FAT CONTENT:** Some mass builders include a small amount of essential fatty acids (often from fish oil or flax seed powders) and medium chain triglycerides (MCTs) or other plant oils in their formulas to bolster the caloric value of the product. Fats are extremely calorie-dense, offering nine

calories per gram. This makes them the ideal macronutrient to boost the calorie density of a product, but they should be derived from healthy sources. As such, avoid products that contain hydrogenated fats.

■ **CARBOHYDRATE SOURCES:** Common mass builders contain maltodextrin (a glucose polymer), glucose (dextrose), waxy maize starch and other HMCs, fructose and modified starches. Fructose and glucose are sugars and should only comprise a moderate percentage of the total carb content. The rest should be HMCs. As such, avoid mass builders with a carb content that is predominantly made up of sugars.

■ **CALORIE CONTENT:** As your ultimate goal is boosting your daily calorie intake, your mass builder should supply ample calories per serving. Most mass builders typically offer 400 calories per serving, with some offering over 1000. Be sure to check the label and choose the right one for your needs based on your ideal daily calorie consumption requirements.

TRAINING APPROACH

In terms of training, the old thinking was that hard-gainers had a muscle fibre composition that predominantly consisted of slow twitch muscle fibres, which are better suited for endurance. As such, high-volume weight training was the most common approach. However, this broad generalisation does not always hold true for every ectomorph, with certain hard-gainers more likely to respond to much lower rep ranges – as low as three per set in some instances – with much heavier weights. This type of training focuses on quality, not quantity, using the load to drive the desired anabolic and neuromuscular responses that elicit the greatest adaptive response.

There is also enough scientific evidence available today to support the idea that people have different hormonal responses to different rep ranges. This means that the desired response to training can also depend on the individual, not the rep range.

The key then is to try both approaches and see which is best suited to your genetic make-up and hormonal response. One thing you can be certain of, though, is that the traditional 3-4 sets of 8-12 reps is not going to be as effective as one of the other two approaches mentioned. In this regard, you may benefit from a look back at workouts in previous issues, such as our power-building feature in the previous issue (Jan/Feb 2017). ■

"HIGH-VOLUME WEIGHT TRAINING WAS THE MOST COMMON APPROACH FOR HARD-GAINERS. HOWEVER, THIS BROAD GENERALISATION DOES NOT ALWAYS HOLD TRUE FOR EVERY ECTOMORPH."



"THE CANON
LEGRIA HF SERIES
NOW HAS **ENHANCED
LOW-LIGHT CAPABILITY
FOR CLEAR AND
COLOURFUL MOVIES.**"

GUY GEAR

A QUADRONES RANGE

Branded tech and accessories distributor Gammathek has launched an expanded range of AWW Industries Quadrones in South Africa. Quadrones are designed to perform aerial acrobatics, with premium models boasting a built-in camera to deliver colour videos and stills. Infrared-enabled Battle Drones offer a real-life gaming experience. The range includes:

- **The Quadrone** – Features a four-axis structure for faster flying. It is wind resistant and can be flown both outdoors and indoors. It boasts a six-axis gyroscope for precise hovering in the sky. **R999**
- **The Quadrone XLC** – Includes a digital camera capable of shooting stills and videos. **R1,999**
- **The Quadrone Blade** – Ideal for beginners with a 2.4 GHZ, 4 channel range of up to 300 feet. **R1,499**
- **The Quadrone Snap** – The 3-in-1 drone with a six axis-gyro

and headless mode for greater maneuverability. **R2,999**

- **Quadrone Battle Drones** – Equipped with interactive Infra Red recognition. **R2,999**

Available at leading outlets across the country including Incredible Connection, iStore and Musica.

B NEW BODY GLOVE PHONE COVERS

The Body Glove lineup, now available in SA, includes the Body Glove LiquidNano Screen Protector, Armor flip case and Elite flip case. The Body Glove LiquidNano Screen Protector offers superior screen protection for smartphones using advanced, shatterproof invisible Liquidnano glass protector technology to stop scratches and cracks. The Body Glove Impact Armor Flip Case and Elite Flip Case for iPhone 7 and 7 Plus deliver convenience and functionality. The flip cover wraps around the side of the phone, adding an extra layer of

protection, and boasts two internal credit card slots. The cases also convert into a media stand for watching videos while protecting the screen from smudges, scratches and dirt. **Available through Gammathek in leading retail outlets.**

C BODY GLOVE FREE WIRELESS STEREO HEADSET

The Body Glove Free Wireless Stereo Headset is designed specifically for devices that use Bluetooth for audio communication and music playback. The headset boasts features such as support for Bluetooth version 4.1, support for A2DP, AVRCP, headset and handsfree modes. The headset's transmit range is 10m (max 16m), with a standby power time of 100 hours and music playback capacity of 3.5 hours, with only 2.5 hours of charging. **Available through Gammathek in leading retail outlets.**

D CANON LEGRIA HF SERIES

Canon's refreshed Legria HF series includes the HF R806 and HF R86 quality HD video camera models. The updated line retains the features of the range's predecessors and adds more creative control, including flexible frame rates for slow and fast motion effects that can be changed mid-recording, as well as enhanced low-light capability for clear and colourful movies. The Highlight Priority mode is backed-up with an improved Backlight Correction, which can now be selected directly when shooting to ensure sharper contrast between light and dark, even in bright scenes. Powerful Intelligent IS with 5 axis stabilisation helps balance out any camera shakes, and the connectivity features of the new series let you share videos instantly with built-in Wi-Fi and Dynamic NFC. The range also boasts a new body finish. ■

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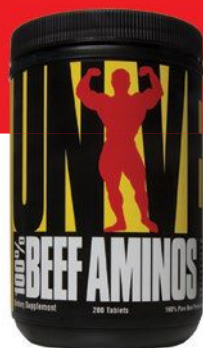
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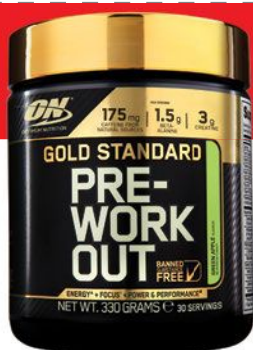


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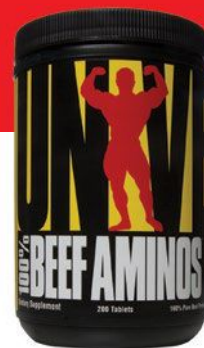
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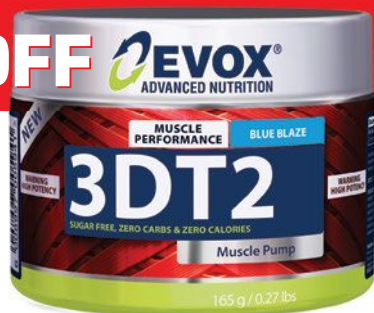
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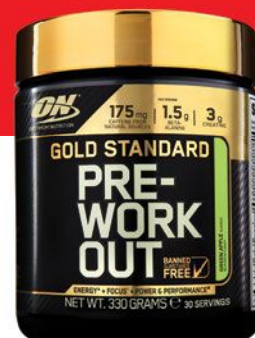
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The GoPro Hero 5 Black Action Camera is the most powerful and versatile action camera yet thanks to its 4K video, voice control, one-button simplicity, touch display and waterproof design. The stabilised video, crystal-clear audio and pro-quality photo capture allows everyone to take the perfect picture, no matter the conditions. Editing and sharing is now easier with the ability to automatically upload footage to GoPro Plus Cloud. The Quik and Capture app can also be paired to the GoPro via wifi. **Available at Cape Union Mart stores and online at www.capeunionmart.co.za. R7,999**

B TOMTOM SPORTS APP

The new TomTom Sports app provides users with motivational messages, shares activity trends and comparisons, and tracks performance stats, including body composition and resting heart rate, which can be viewed at a glance or analysed on a by-the-second level by advanced athletes. Track up to 12 different activity types on the app, ranging from running, cycling and swimming to skiing, trail running and hiking. With smart comparisons, users can also benchmark their latest performance against previous bests. Seamless data sharing is also possible with a range of third party platforms like Strava, Nike+, Endomondo, MapMyFitness, Runkeeper. Available for download

from the Apple Store and Google Play and supports the TomTom wearable ranges. **For more info go to tomtom.com/sportsapp.**

C SUUNTO SPARTAN SPORT WRIST HR GPS WATCH

The new Spartan Sport Wrist HR is Suunto's first GPS sportswatch with optical heart rate measurement for multi-sport racing and training. Featuring the patented PerformTek biometric measurement optical HR technology by Valencell, the Spartan Sport Wrist HR offers athletes the same multi-sport features as the original Suunto Spartan Sport, with the possibility to still use the watch with a traditional heart rate sensor

when needed. **Available in spring 2017 in three colour options, namely Black, Blue and Sakura.**

D K-WAY SWIFT 2L PACK

The K-Way Swift Hydration Pack is an efficient, lightweight but durable pack which accommodates a 2 litre hydration bladder. It is ideal for trail runners, mountain bikers, hikers and day-trippers who want to keep hydrated on the trails and in the mountains. The mesh back ensures adequate ventilation, while the bungee straps provide easy storage and the sternum straps keep the bag from moving and provide a secure fit. **Available at Cape Union Mart stores and online at www.capeunionmart.co.za. R499 (excluding bladder) ■**



LEAN GAIN EXPLOSION WITH CREABLAST

Being fit takes quite a toll on the body. It can be hard to recover from intense workouts without putting on extra body fat, especially when we are looking to gain some new lean muscle mass. 3D Nutrition has created something specifically for this; 3D Crea Blast!

Creatine has, and always will be a staple of lean muscle gains. It is the most researched supplement to date, and is regarded as one of the most effective performance enhancers, shown to reduce ATP degeneration by 30%, and can increase body mass by 0.9-2.2 kg's in just one week. However, creatine is a lot more effective at slapping on muscle if bonded with a carbohydrate source. 3D Crea Blast is a combination of creatine monohydrate and ethyl-ester, along with Dextrose (powdered Glucose), to fuel the rebuilding process.

Per 30g serving of 3D Crea Blast, there is 19.5g of Dextrose to spike your insulin levels, and drive those 10g of Creatine and Glutamine into the muscle directly. This coupled with Chromium picolinate and Banaba Leaf extract makes every bit of carbs effective, so that your body will use every microgram.





Chromium picolinate works by pulling glucose out of the blood stream to then be used by the body, which decreases sugar cravings, combats insulin resistance, fights body fat, lowers cholesterol levels, and balances blood sugar levels. Banaba leaf extract works by transporting sugar into cells, which improves the metabolism of insulin, and can decrease blood sugar levels by 10-15% within the first two hours of consumption. That means more energy in the muscle to repair, which leads to lean growth, as well as reduction in body fat.

Crea-Blast comes in three delicious flavours thanks to the 3D taste technology that we use to flavour our products; Crème Soda Buzz, Fruit Punch Pop, and Pineapple Fizz, and each tub provides you with 30 days of explosive gains. CreaBlast is the perfect solution to ensure that your body is performing optimally by increasing your strength, giving your muscle that much-needed endurance, keeping you looking full while staying lean, and assist in recovery to keep those lean gains coming.



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SHANNON CORNELL

■ **Shannon Cornell is a buzzing socialite who loves to set the competitive stage alight with her drop-dead gorgeous physique and her sparkling personality.**

She rolls in a close-knit group of friends where she now lives in Durban and she's fiercely loyal. And she carries that passion and ferocity into the gym for every training session.

"Consistency in training and knowing how your body responds to nutrition, that is my secret for a great physique.

A high-protein, low-carb diet along with some carb cycling works best for me."

What would you say is your biggest flaw?

I'm always running late.

What's the secret to your up-beat personality?

I have the ability to laugh at myself and I generally don't take things too seriously. I also constantly push myself to be a better person.

Have you always been an active person?

I was an avid swimmer at school but found my love for the fitness industry once I had left school and started working.

What sparked your interest in the competitive fitness industry?

An old friend of mine encouraged me to compete, which I did for the first time in 2012.

What do you do for a living?

I currently distribute South Africa's most innovative topical fat burning gel called Sculpt and the L-Carnitine injectable called Carnaject, one of the secrets to staying in shape all year round.

Shannon's training split

MON	Quads & glutes
THU	Calisthenics
FRI	Hamstrings & glutes
SUN	Back & shoulders

How do you structure your training?

I train four times a week using workouts that target legs, glutes, back and shoulders.

Only four times a week? How do you manage that?

Well, I don't train arms or calves at all – they get worked during my other sessions.

What's with the calisthenics in your programme?

It's a great bodyweight-based way of exercising which consists of a variety of movements that increase body strength, fitness and flexibility.

What do you enjoy training most, then?

I love training back because having a strong back always helps with calisthenics.

What exercises are your favourites?

I love any variation of squats,

QUICK FACTS

Nickname: Shanni

Date of birth: 15 August 1989

Place of birth: Johannesburg

Lives: Durban

Height: 1.56m

Off-season weight: 52kg

Contest weight: 50kg

Competing since: 2012

Sponsored by:

Intensemusc.com, Sculpt Gel, Tight Line Fisheries

f Shannon Cornell

@shann_cornell

>> Photography by
Slade, Pure Studio



"I love the stage because it gives me the motivation to **constantly challenge myself to grow, both physically and mentally.**"

CONTEST HISTORY

- **IFBB Novice Show 2012**
Beach Bikini 6th
- **IFBB KwaZulu-Natal Show 2014** Beach Bikini 3rd
- **NABBA 2014** Bikini 3rd (In honour of Chris Scott)
- **IFBB SSN Universe 2015**
Fitness Bikini 4th
- **IFBB KwaZulu-Natal Show 2015** Fitness Bikini 1st
- **IFBB South African Championships 2015** Fitness Bikini 3rd
- **IFBB KwaZulu-Natal Show 2016** Fitness Bikini 5th
- **IFBB South African Championships 2016** Fitness Bikini 3rd

pull-ups and deadlifts because I believe the basic movements are the best for becoming fit and fabulous!

What do you find to be the biggest drag in the gym?

Definitely training abs – I hate that they only pop out just before a competition! I generally hit my abs before or after fasted cardio in the mornings, particularly in the lead up to a show and I do a lot of core work during the off-season, too.

Who looks after your prep for shows?

Ken Skip Hill from intensemuscle.com.

What do you like most about the local fitness industry?

I love building relationships and forming new bonds with people.

And what's your biggest gripe?

I don't like it when athletes use it as a platform for self-gain without any consideration for a person's feelings or thoughts.

What's your favourite meal?

Roast chicken and vegetables.

Outside of competing, dieting and training, what do you absolutely love doing?

I love baking, reading and spending quality time with my hubby and our three beautiful dogs!

What is the sexiest male characteristic, in your opinion?

A strong personality sprinkled with wit and humour.

Favourite place on earth?

A popular tourist attraction called The Big Buddha. It's a large bronze statue of Buddha Shakyamuni at Lantau Island in Hong Kong. The place is rich in culture, symbolising the harmonious relationship between man and nature, people and faith. ■

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» By Pedro van Gaalen

A POPULAR FITNESS MEME REGULARLY SHARED ON SOCIAL MEDIA BY GYM ENTHUSIASTS AND SERIOUS ATHLETES PROUDLY STATES:

“Obsessed is a word the lazy use to describe the dedicated!”

While exercise is a healthy pursuit and pushing your physical limits to achieve new personal bests is an admirable trait, problems arise when it becomes something else.

EXERCISE ADDICTION

■ WHEN YOUR COMMITMENT TO EXERCISE BECOMES BAD FOR YOUR HEALTH

When taken to extremes, exercise actually damages our health, often leading to conditions like anaemia, arthritis, heart problems, memory loss, soft tissue and bone injuries, and even infertility. In the worst case scenario, you can even exercise yourself to death.

However, there are many who feel a compulsion to exercise often and to extremes and the thought of taking a day off from training tends to result in anxiety or stress. In most cases, where the desire to become fit and healthy becomes an all-consuming obsession, we can generally start to frame this as exercise addiction.

This psychological state is characterised by a compulsive engagement in any form of physical exercise, despite any potential negative consequences.

However, according to Renee Shearing, a Cape Town-based registered Occupational Therapist

and Tension/Trauma Release Exercise and EMDR practitioner, who specialises in dealing with and counselling addictions, eating disorders, stress and trauma, diagnosing a condition such as exercise addiction can be tricky because it is commonly associated with other psychological disorders.

There are, of course, those people who chase the endorphin and serotonin and dopamine rush that comes from exercise, similar to that of some drug and alcohol addicts. The release of these neurotransmitters act on the nervous system to create a sense of pleasure or reward, which exercise addicts may develop a dependency to. This is termed primary exercise addiction, as the physical activity itself is the gratification.

The other, more common form of exercise addiction, is often classified as a secondary addiction because it occurs in conjunction

with an eating disorder and is often used to control and manipulate weight. “People who suffer from conditions such as exercise bulimia or anorexia athletica tend to use excessive exercise to mask their calorie-purging behaviour,” explains Shearing. “However, it is also a mental obsession, in the same context as that of an eating disorder.”

However, exercise addiction, also known as exercise dependence, compulsive exercise, or obligatory exercise, isn’t classified as a clinical condition by the American Psychiatric Association, which means that there are no specific diagnostic criteria to determine this condition outside of its association with an eating disorder.

“It is therefore well hidden and can fly under the radar for a long time, but it is hugely prevalent,” states Shearing.

TREADING A FINE LINE

One of the major issues faced in determining if exercise habits border on the obsessive is the fact that modern society generally praises the level of commitment to training exhibited in these situations.

"Exercise is considered to be a healthy pursuit and is often even used in the treatment of other addictions. In fact, most exercise addicts won't see anything wrong with their behaviour," she adds. However, there is a fine line between intense or competitive training and damaging, compulsive exercise behaviour.

The other issue is that the addiction may not actually be about exercise itself, but rather the relationship or the dependency that someone has to exercise as a coping or masking mechanism. This is commonly referred to as a behavioural addiction, on par with gambling, sex or video game addiction.

"People may exercise excessively because it offers them a distraction from their problems as they probably never developed other coping mechanisms. In these instances, the addiction is a subconscious avoidance tactic and this fact is often quite hidden to the person engaged in the addictive behaviour," elaborates Shearing. That's because these people often aren't aware what the behaviour is masking and it's the reason why they tend to get defensive when the issue of excessive exercise is broached with them.

"They'll tell you that exercise brings them enjoyment," continues Shearing, "but it's actually just a maladaptive coping mechanism – an unconscious avoidance of whatever is troubling them, be it stress, relationship issues, trauma, or self loathing. However, soon this avoidance behaviour becomes a way of life for them, but it's nothing more than a distraction; a way to not look at and deal with what is going on in their lives."

Shearing suggests that this condition can often be more

"PEOPLE MAY EXERCISE EXCESSIVELY BECAUSE IT OFFERS THEM A DISTRACTION FROM THEIR PROBLEMS AS THEY PROBABLY NEVER DEVELOPED OTHER COPING MECHANISMS."

common in younger people as they have yet to develop the mechanisms needed to contend with modern life's various stresses. "Older people are generally more resilient and tend to have the capacity and skills to cope with more, which means they're less likely to become addicted to exercise."

The problem arises when people, particularly the young, fail to develop the innate cognitive ability to tolerate discomfort, emotional pain or emotional turmoil, suggests Shearing. "Using avoidance tactics such as excessive exercise inhibits the natural development of the neural pathways that develop through time as we are exposed to and learn to cope with stress, which is a common feature among addicts. We need to be exposed to something first and learn to tolerate it before we can decide how to deal with it or how to act appropriately. Sometimes this process never happens and we find other ways to cope."

Shearing offers the example of someone who started their addictive behaviour at the age 16. "We tend to find that this person will still have the coping capacity of a teenager in

their adult years and will therefore find that it takes longer to overcome any addictive behaviour."

In this way, Shearing explains that addicts are more child-like in their ability and approach to dealing with issues in life. "They choose to rely on coping mechanism that replace the mental capacity needed to process and deal with these issues. And the more life throws at them, the more they'll need the crutch of the addictive behaviour to cope with the stress."

This is different to an addict who constantly chases the rush of endorphins because they tend to build a tolerance to them and therefore need more and more exercise to achieve the same 'high'.

Shearing adds that humans have also been socialised out of the instinctive ways that other mammals deal with stress, which, coincidentally, is often through specific forms of physical activity. "However, without this ability we become addicted to the behaviour that provides this release."

Regardless of the underlying mechanism, though, the outcome of this addiction tends to be the same. Physical manifestations of exercise addiction include chronic exhaustion, extreme weight loss, regular illness due to a suppressed immune system, poor sleep quality, ill health, heart arrhythmia and overuse injuries.

To better determine if you suffer from **EXERCISE ADDICTION**, it's worth asking yourself the following questions:

- Are your exercise habits causing issues in your life? Are you losing friends or experiencing relationship issues? **YES / NO**
- Are people in your life complaining about the amount of exercise you do? **YES / NO**
- Do you constantly need to keep increasing the amount of exercise you do to keep feeling good about yourself? **YES / NO**
- Is exercise making you sick and weak instead of strong and healthy? **YES / NO**
- Are you constantly exhausted? **YES / NO**
- Is your productivity declining? **YES / NO**
- Do you look and feel run down? **YES / NO**
- Are you getting enough sleep? **YES / NO**
- Are you still exercising despite an injury? **YES / NO**
- Do you often squeeze in extra training sessions whenever you can? **YES / NO**
- Are you unable to stop training in the face of various other responsibilities? **YES / NO**
- Are you attaching your self-worth to the outcomes of your exercise or training? **YES / NO**
- Do you base decisions on your ability to exercise, like where you choose to vacation? **YES / NO**
- If you're training toward a specific goal or event, are you able to take a break afterwards? **YES / NO**

? SELF EVALUATE YOUR ANSWERS.

Still not sure if you're an addict or just very committed, then take the test on page 28.

"THE MOST PREVALENT AGE FOR DEVELOPING EXERCISE ADDICTION IS BETWEEN 18 AND 24, WITH RATES AT THEIR LOWEST AFTER AGE 45."



"YOU CAN'T KEEP DOING THINGS THAT STOP YOU FROM FEELING. AND IF EXERCISE IS THE CRUTCH YOU USE TO WITHDRAW FROM LIFE'S DIFFICULTIES, THEN I STRONGLY URGE YOU TO SEEK HELP."

IS THIS ME?

So how can you determine if you've crossed over from being a dedicated gym-goer to a wild-eyed exercise addict?

Shearing says the common tell-tale signs associated with exercise addiction include withdrawal from social and family commitments, the emergence of relationship issues due to time away from partners and family, overwhelming guilt at missing even a single exercise session, obsessing over workouts or the planning of training programmes, downplaying the time you spend exercising and getting defensive when confronted about it, and poor productivity in other areas of life such as work and home. Exercise addicts often also struggle with depression, anxiety and neuroticism.

"The first step I take with clients who I suspect may be addicted to exercise is to get them to stop training for two weeks. That's not enough time to lose any significant strength or fitness, but it will tell you a great deal about your relationship with exercise," she says. "That's because it's unlikely that an exercise addict could make it even five days without going a little stir-crazy."

Shearing requests that her clients use this time to examine how they feel and think in the absence of exercise. "Journalling is a great tool

in this regard as it helps to identify trends in thoughts and emotions during this time, making it easier to determine if exercise is an all-consuming component in your life. Most importantly, though, we work on finding what a client's motivation is for exercising."

"It is only when you identify and acknowledge these factors and give yourself time to deal with them that you generally can start to manage or even stop the addictive behaviour," continues Shearing. This process requires brutal honesty, and self-control is then required to manage exercise addiction, in conjunction with the development of the coping mechanisms that were lacking in the first place.

Interestingly, Shearing says that a specialised form of physical activity known as Tension/Trauma Release Exercise (TRE®) can be used to help people cope with stress. **"We all have an inherent natural mechanism within our bodies that deals with stress, called a tremor mechanism which works to down-regulate stress. This happens following exercise, or when we experience shock – it's the body's way of removing excess adrenalin and cortisol, which are the hormones that activate our flight-or-fight response. When this mechanism is functioning properly**

it helps to return stress levels and hormones back to baseline, but we've suppressed this natural feedback loop due to the chronic levels of stress in our lives. As such, we tend to find other ways to cope, which can often result in additions, of which exercise can be one."

What TRE® does is activates and utilises the body's natural mechanism to down regulate stress and release tension, explains Shearing. "After a TRE® session, people tend to feel more grounded, more present and able to cope. It is not a cure to addiction, however it provides the body with a natural coping mechanism to use every week to improve a person's tolerance of stress and emotion. It's basically re-learning our lost ability to self-regulate stress, which some cultures do naturally, whereas Western society now prefers to use chemicals to achieve a similar outcome." This, of course, has its own set of potential problems related to addiction.

"Ultimately, you can't keep doing things that stop you from feeling. And if exercise is the crutch you use to withdraw from life's difficulties, then I strongly urge you to seek help by going to speak to a qualified psychologist for the sake of both your mental and physical health," concludes Shearing.

TAKE THE TEST

Another tool that can be used to determine exercise addiction is the **Exercise Addiction Inventory (EAI)**, developed by psychologist **Mark Griffiths, PhD**. It includes a **six-point questionnaire** where answers are rated according to a **five-point scale**:

- 1** strongly disagree
- 2** disagree
- 3** uncertain
- 4** agree
- 5** strongly agree.

EXERCISE ADDICTION INVENTORY

RATE YOUR QUESTIONS 1-5:

- 1.** Exercise is the most important thing in my life.
1 2 3 4 5
- 2.** Conflicts have arisen between me and my partner about the amount of exercise I do.
1 2 3 4 5
- 3.** I use exercise as a way of changing my mood (e.g. to get a buzz or to escape).
1 2 3 4 5
- 4.** Over time I have increased the amount of exercise I do in a day.
1 2 3 4 5
- 5.** If I have to miss an exercise session I feel moody and irritable.
1 2 3 4 5
- 6.** If I cut down the amount of exercise I do and then start again, I always end up exercising as often as I did before.
1 2 3 4 5

HOW DID YOU SCORE?

- A score of **24-30** suggests the highest likelihood of exercise addiction;
- A score of **13-23** suggests a person is at moderate risk;
- A score of **0-12** means low risk for exercise addiction. ■



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IN THE CONTEXT OF TRYING TO MANAGE CONDITIONS SUCH AS OVERTRAINING AND INJURY FROM EXCESSIVE EXERCISE, WE OFTEN TEND TO DISPROPORTIONATELY FOCUS ON MANAGING OUR TRAINING VOLUME AND INTENSITY. SELDOM DO WE CONSIDER THAT OVERTRAINING CAN JUST AS EASILY BE EXPLAINED AS A CONDITION CAUSED BY UNDER-RECOVERY, RATHER THAN TOO MUCH EXERCISE.

And in addition to the physiological stress of exercise, we are all exposed to varying types of lifestyle stressors and degrees of stress, and the response our bodies have to this multitude of stressors, be it physical stress from training, mental stress from work or emotional stress, all manifest in the same way by affecting the same bodily systems, particularly our nervous and hormonal (endocrine) systems.

To be more specific, heavy training, a stressful job, biomechanical dysfunction from extended periods of sitting and inactivity, diet-induced stress, pollution and life stress all interact seamlessly to create an environment conducive to a breakdown in various bodily systems.

As far as our bodies are concerned, stress is stress. Unfortunately many of us fail to understand this inter-relationship as we tend to compartmentalise stress into different categories and fall into the trap of thinking that physical stress is separate from psychological stress and one cannot affect the other.

PSYCHING OUT YOUR RECOVERY

» By Pedro van Gaalen

■ HOW YOUR MIND CAN HAMPER YOUR ABILITY TO RECOVER BETWEEN TRAINING SESSIONS

■ IT'S ALL IN YOUR HEAD

Well, if recent research is to be believed, your psychological state may very well be limiting your ability to recover between sessions, more so than actions aimed at improving recovery. This lends credence to the idea that overtraining can be caused by under-recovery, as much as it's caused by excessive training.

However, most of these factors affect us between training sessions, during our recovery, and not necessarily during the training itself (although, high stress can certainly impact on the quality of a training session). The most prominent of these factors is chronic stress and our emotional state.

A 2009 study conducted by Samuele Marcora, director of research at the School of Sport and Exercise Sciences at England's University of Kent, titled "Mental Fatigue Impairs Physical Performance in Humans" and published in the Journal of Applied Physiology, showed MENTAL FATIGUE CAN HAVE NEARLY AS MUCH IMPACT ON ATHLETIC PERFORMANCE AS MUSCLE EXHAUSTION. The theory, which Marcora calls the psychobiological model of exercise tolerance, expands on Tim Noakes's central governor theory by combining psychology with biology and physiology.

Studies show that high levels of perceived emotional stress undermine recuperation of physical function and somatic sensations.

■ THE ROLE OF RECOVERY

As has often been written in this magazine, gains in fitness, strength and muscle are not made during your training, but rather between sessions when your body rebuilds itself through a cascade of hormonally-mediated processes.

These processes work to repair the structural damage that naturally occurs to muscles and connective tissue during training, and allows the physiological adaptations to exercise to occur. The recovery process also replenishes expended energy stores, such

as glycogen stored within muscle cells.

The recovery process also aims to return the body to a state of homeostasis (balance) in terms of hormonal, nervous and immune system functioning, and lower the body's temperature back to normal resting levels.

■ ACCUMULATED STRESS

However, when you lurch from one stressful situation – a hard training session, for example – to another – a high-pressured afternoon in the office or working late into the night on deadline – you heap psychological stress onto the physical stress you've imposed on your body, all at a time when you should be giving your body every opportunity to repair itself.

This is what is commonly termed "burning the candle at both ends" as the psychological stress of work commitments, or even the emotional stress of strained personal relationships between family or friends, as another example, are hampering the processes of recovery and adaptation.

This has been corroborated in a number of studies, with one of the more recent, a meta-analysis published in the journal Sports Medicine, finding that athletes are most likely to sustain physical injuries during times when psychological and/or social

stress is high.

The team of Swedish researchers, led by Andreas Ivarsson from the Center of Research on Welfare, Health and Sport at Halmstad University in Sweden, sought to examine the effect of relationships between psychosocial variables and injury rates, and the effects of psychological interventions aimed at reducing or preventing injury.

The findings of the study were published in 2016 and showed that "stress responses and history of stressors had the strongest associations with injury rates." The researchers concluded that the results "support the model's suggestion that psychosocial variables, as well as psychologically-based interventions, can influence injury risk among athletes."

In addition, a 2013 study led by Matthew Stults-

Kolehmainen, who specialises in the study and understanding of the interface between exercise or physical activity and mental stress, investigated the effect of stress on recovery from an intense bout of resistance training in college students.

The study, which was also published in the journal Sports Medicine, in 2014, first assessed the stress levels of participants via questionnaires. Students were then divided into a low stress or high stress group based on the results. The two groups then performed an intense resistance training workout and were monitored up to 96 hours after the session had ended.

The research team found that

recovery was delayed by up to several days in the high stress group. They concluded that high levels of perceived emotional stress undermine recuperation of physical function and somatic sensations.

And the same was observed

in a University of Texas study, published in Medicine & Science in Sports & Exercise, which put 31 undergraduate students through a heavy-resistance exercise protocol. Participants with higher stress scores took longer to recover their maximum strength, even when their fitness, workload and training experience were controlled for.

"MUSCLE IS NOT BUILT DURING YOUR TRAINING, BUT RATHER BETWEEN SESSIONS."

"ATHLETES ARE MOST LIKELY TO SUSTAIN PHYSICAL INJURIES DURING TIMES WHEN PSYCHOLOGICAL STRESS OF WORK COMMITMENTS, OR EVEN THE EMOTIONAL STRESS OF STRAINED PERSONAL RELATIONSHIPS BETWEEN FAMILY OR FRIENDS IS HIGH."

■ IMMUNE (DYS)FUNCTION

Adding further support to this theory is the effect that stress has on immune system function. Whether it is repairing damage from a hard session in the gym, or on the track, or a wound from surgery, the immune system is primarily responsible for fulfilling this important biological task.

Accordingly, if high chronic stress impedes recovery from wounds, then it stands to reason that it can blunt your body's adaptive response to the damaged tissue that results from intense or high-volume training.

To corroborate this stance, a study published in Immunology And Allergy Clinics of North America in 2011 by Jean-Philippe Gouina

and Janice K. Kiecolt-Glasera, titled "The Impact of Psychological Stress on Wound Healing: Methods and Mechanisms" showed that psychological stress can modulate wound healing processes.

In the paper, the researchers explain that "psychological stress leads to the activation of the hypothalamic-pituitary-adrenal and the sympathetic-adrenal-medullary axes. Enhanced glucocorticoids and catecholamines production can directly influence several components of the healing process. Substantial evidence from animal and human studies indicate that physiological stress responses can retard the initial inflammatory phase of wound

"IF HIGH CHRONIC STRESS IMPEDES RECOVERY FROM WOUNDS, THEN IT CAN BLUNT YOUR BODY'S ADAPTIVE RESPONSE TO THE DAMAGED TISSUE THAT RESULTS FROM INTENSE OR HIGH-VOLUME TRAINING."

healing." Accordingly, they state that psychological stress can have a substantial and clinically relevant impact on wound repair. This immunosuppression is also the reason why athletes tend to get sick during periods of heavy training load and/or highly stressful life situations.

■ MANAGING STRESS

It is therefore highly beneficial to manage psychological stress levels during the recovery period, particularly 24-48 hours after intense training sessions or races or competitions.

Conversely, this also means skipping hard sessions during times of high psychological or emotional stress, the nature of

which makes it hard to predict or control. It is therefore often the athletes who steadfastly stick to a training programme with little consideration for the external

factors that can affect their performance and recovery who find themselves in an over-trained (or under-recovered) state or, worse, injured.

"USE LIGHT, EASY EXERCISE AS A MEANS TO DE-STRESS DURING PERIODS OF HEIGHTENED WORK STRESS OR PERIODS OF EMOTIONAL STRESS."

"TRY YOGA TO HELP DEAL WITH LIFE STRESS."



A team of German scientists from the Technical University of Munich who were investigating burn-out and depression in sport, studied a cross-section of 162 elite and 199 junior athletes. They found that SPORT-SPECIFIC STRESS COMBINED WITH INSUFFICIENT RECOVERY TIME WAS ASSOCIATED WITH SYMPTOMS OF DEPRESSION. Depression was especially associated with a lack of time to recover from stress, said the researchers, who presented their findings at the British Psychological Society's sport and exercise psychology meeting in Cardiff. ■

PRACTICAL TIPS TO HELP YOU BALANCE PHYSIOLOGICAL AND PSYCHOLOGICAL STRESS TO MAXIMISE YOUR RECOVERY POTENTIAL INCLUDE:

- **Use light, easy exercise as a means to de-stress** during periods of heightened work stress or periods of emotional stress. Avoid heavy training loads or bouts of intense exercise.
- **Minimise all forms of stress after hard sessions or races** for at least 48 hours afterwards. Try to avoid highly stressed people, situations and environments.
- **Be flexible with your programme** and don't chase targets at all costs. Listen to your body.
- **Don't push through feelings of chronic fatigue and tiredness.**
- **Find additional ways to deal with life stress by disconnecting.** Examples include yoga, reading, socialising with friends or meditating.
- **Ensure complete rest days are free from all forms of stress.** This may require that you take a day off on the weekend every now and then to ensure there is no work stress.
- **Eat a well-balanced diet** composed predominantly of whole, natural foods. Avoid added sugar, alcohol, tobacco and drugs.
- **Get at least eight hours of sleep a night.** Try to get an extra hour during periods of peak training volumes or blocks of high-intensity work, or take naps when possible.
- **Basically, don't burn the candle at both ends!**



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5 WAYS TO STEP UP YOUR EARNING POTENTIAL AS A PERSONAL TRAINER

With a finite number of billable hours available during the day, personal trainers often hit a ceiling in terms of their earning potential. However, there are ways to boost your earning power.

HERE ARE FIVE OF THE BEST...

1 GET MORE QUALIFICATIONS

Instead of doing the minimum to get your continued education credits (CECs), trainers who continually improve their skills and knowledge base not only become more competent at their job and better able to deliver results – which clients are willing to pay a premium for – but they're also able to meet a wider variety of needs. After all, why refer clients to a massage therapist when you can become a qualified therapist yourself? **A broader service offering also means you can supplement income during periods when personal training clients aren't as active, like during winter or over December.**

And with more qualifications you'll also have an attractive resume, should you ever wish to look for formalised employment in training institutes or big commercial gyms.

2 SPECIALISE

You can choose to gain qualifications in a broad range of health, fitness or sporting disciplines, or you can choose to specialise in a specific area. **And specialised skill sets warrant higher hourly fees – you'll be boosting your income without working additional hours.** It's the same reason why a medical specialist charges exponentially more than your GP.

The rehabilitation of special populations, pre- and post-natal exercise, corrective exercise and sport-specific conditioning are all specialised fields that require a greater amount of study. These specialists can therefore command a higher hourly rate for their services as they substantially increase their value to individuals in need of their skills.

You could also specialise in a specific field within personal training, such as transformations, weight loss or stage prep.

3 GET A SIDE HUSTLE

One of the best ways to scale your business and break free of the time-based limitations in traditional personal training models is to take your business online. A great place to start is designing and selling individualised exercise and nutrition (if you have the qualification – see points 1 and 2) programmes.

You can also offer one-on-one coaching and counselling. With the variety of Internet-based communication channels available today, like Skype, email and instant messaging, you can engage with more clients during the course of the day while still offering a personalised service.

You can also sign up to affiliate marketing and sales programmes where you can earn a share of revenue or commission for selling workout gear, exercise equipment, supplements and ready-made healthy meals to your clients.

4 CONSIDER GROUP TRAINING

Whether it's running your own boot camp or a group exercise class at the gym, group training can be very profitable for a trainer, while also making sessions more affordable for clients. It may take an initial investment to secure the appropriate location and get the necessary equipment, but by training up to 15 people an hour, you significantly boost your earning potential. **As a result your services also become more accessible to a wider potential market and clients are inclined to bring friends along, making it ideal for referral business.** Group training sessions are also highly engaging for the trainer and clients, which will add a new dynamic to your business model.

#fact: Personal trainers who invest in a mobile training device can charge a full rate for a 30-minute session, effectively doubling their hourly earning potential.

5 IMPROVE THE EFFICIENCY OF WORKOUTS

Most training sessions last 45 minutes to an hour because that's generally how long it takes for a workout to have any real benefit. But what if you could deliver the same, or even greater benefits to your client in less time? Well, you can.

Full-body electro-muscle stimulation, or EMS is an extremely effective form of exercise that is able to deliver a training effect in just 20 minutes that could take up to a week to achieve using conventional exercise.

EMS uses electrical impulses to stimulate involuntary muscle contractions that are very different to the voluntary contractions during conventional exercise or weight training. They are more intense and activate more muscle fibres. Full-body EMS therefore rapidly improves muscle tone and body composition, especially as it boosts a client's resting metabolism, helping them burn more fat, even at rest.

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By developing strong, sculpted shoulders you'll also appear broader, which in turn gives the illusion of a smaller waist for that sought-after V taper. The aim here is to also build 'round' shoulder muscles that complement the shape of your upper arms to give you the ultimate masculine upper body frame.

WHY TRAPS & DELTS?

Some lifters may argue that traps are technically classified as a back muscle rather than shoulder muscles, and they're not wrong. However, the traps primarily lift and rotate your shoulder blades. This makes the upper and lower traps synergistic muscles in almost all of the exercises you perform in your shoulder workouts.

Also, by incorporating exercises in your shoulder workout that target the upper aspect of this long, diamond-shaped muscle in your back – mainly shrugs – you're able to dedicate more time and focus to hitting it hard and heavy on back day with real meat-makers like deadlifts, pull-ups and rows. You can be sure that these exercises are best suited to developing your middle and lower traps.

» Written by Pedro van Gaalen, Editor
» Performed by Aaron Hoberg
» Photography by James Patrick

SHOULDERS & TRAPS

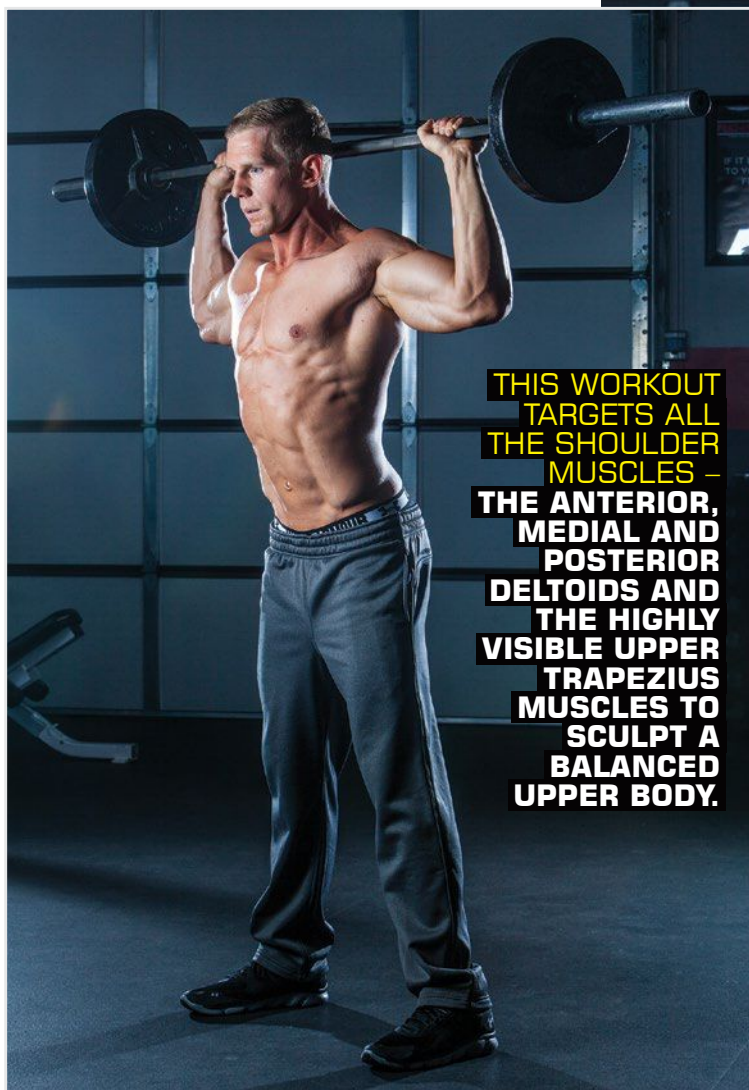
■ A CLASSIC BODY BUILDING COMBINATION

THE WORKOUT

EXERCISE	SETS	REPS
Behind-the-head barbell press	4	8 - 10
Dumbbell shrugs	3	10 - 12
Arnie press	4	8 - 10
Dumbbell upright row	3	10 - 12
DELTOID GIANT SET 1 Front raise 2 Lateral raise 3 Rear delt flyes	3	10 per exercise

BEHIND-THE-HEAD BARBELL PRESS

HOW TO DO IT: Stand up straight holding a barbell with an overhand grip, with your core engaged and feet positioned shoulder-width apart. Clean the bar up to your shoulders. Press the bar up until your arms are almost fully extended. Lower the bar behind your head before pressing it up for the required reps.



THIS WORKOUT
TARGETS ALL
THE SHOULDER
MUSCLES –
THE ANTERIOR,
MEDIAL AND
POSTERIOR
DELTOIDS AND
THE HIGHLY
VISIBLE UPPER
TRAPEZIUS
MUSCLES TO
SCULPT A
BALANCED
UPPER BODY.



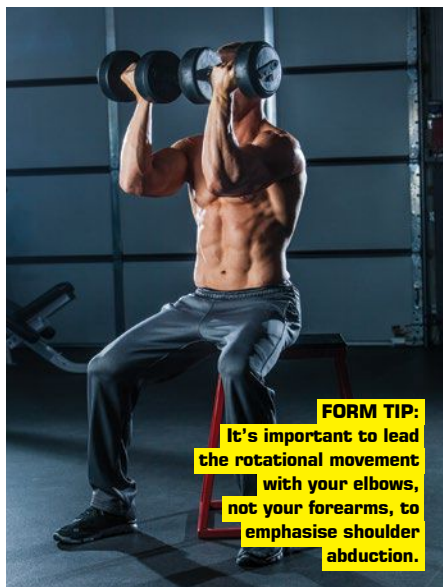
DUMBBELL SHRUGS

HOW TO DO IT: Hold dumbbells in either hand at your sides in a standing position. Place your feet slightly wider than shoulder-width apart. Look forward and keep your head, neck and back aligned. Shrug your shoulders up towards your ears. Hold for a count at the top of the movement, then lower the dumbbells back to the starting position.

FROM TIP:

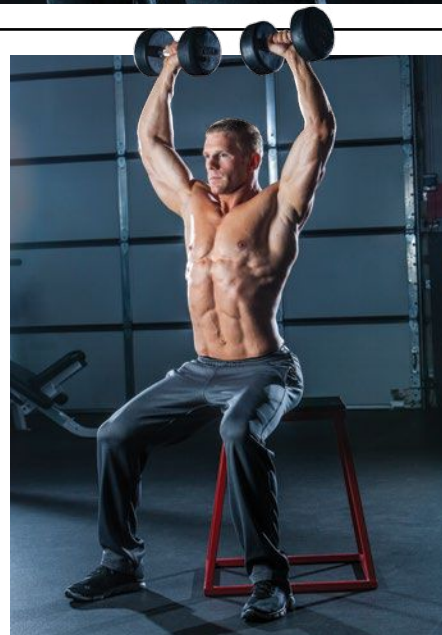
Do not roll your shoulders during shrugs to target your upper traps. Simply aim to touch your ears with your shoulders while performing an up-down movement.

WHY DUMBBELLS ARE BETTER: WHEN PERFORMED USING DUMBBELLS, THIS EXERCISE OFFERS A WIDER RANGE OF MOTION THAN THE BARBELL SHRUG, ALLOWING YOU TO ENGAGE MORE OF THE TRAPEZIUS MUSCLES.



FORM TIP:

It's important to lead the rotational movement with your elbows, not your forearms, to emphasise shoulder abduction.



FORM TIP:

Avoid locking your elbows out at the top of the movement to keep the focus on your shoulders.

ARNIE PRESS

HOW TO DO IT: Sit on a bench or chair holding dumbbells in either hand. Position the dumbbells in front of your shoulders, with your palms facing your body, and your elbows under your wrists. Rotate your elbows out to your sides. As you do so, press the dumbbells overhead until your arms are directly overhead. Lower the dumbbells back down to the shoulders, then rotate your elbows inward until the dumbbells are back in front of your shoulders. Repeat for the required reps.

DUMBBELL UPRIGHT ROW

HOW TO DO IT: Stand upright holding dumbbells in each hand with your palms facing toward you. With your feet positioned shoulder-width apart and a slight bend in the knees, pull the dumbbells up. Lead with your elbows and keep the dumbbells close to your torso. Keep your chest high. Lift until the dumbbells are near chin level. Keep your elbows as high as possible throughout the entire movement. Slowly return the dumbbells back to the starting position and repeat for the required reps.


This exercise targets the upper trapezius, medial and posterior deltoids. The secondary muscle groups incorporated into this movement include the anterior deltoids, biceps and forearm flexors.



THE SHOULDER IS THE MOST COMPLEX JOINT STRUCTURE IN THE BODY AS IT ENABLES THE MOVEMENT OF YOUR ARMS THROUGH 360 DEGREES. IT IS THE ONLY JOINT STRUCTURE IN THE BODY WHERE THAT'S POSSIBLE. YOU THEREFORE NEED TO WORK YOUR SHOULDERS FROM A VARIETY OF ANGLES.



DELTOID GIANT SET



FORM TIP: Don't lift your arms higher than parallel to the floor as this places strain on the rotator cuff muscles.



■ MOVE 1: FRONT RAISE

HOW TO DO IT: Stand upright holding dumbbells in either hand, with your feet shoulder-width apart and your palms facing your thighs. Lift one arm forward and up. Return it to the starting position then repeat with the other arm. Continue in an alternating fashion.



■ MOVE 2: LATERAL RAISE

HOW TO DO IT: Lift your arms out to your sides until they are parallel to the floor. Reverse the movement and repeat for 10 reps before moving to the next exercise.

FORM TIP: Keep your elbows higher than your wrists to maintain tension on the targeted part of the shoulder.

■ MOVE 3: REAR DELT FLYES

HOW TO DO IT: Hinge at the hips and lean forward until your torso is at no more than 90 degrees with the floor. Raise both arms out to the side until parallel with the floor. Reverse the movement and repeat for 10 reps. Once this exercise is complete, you've done one set. Now do two more.

FORM TIP:
Keep tension on the rear deltoids by leading with your elbows. Keep your head and neck in a neutral position.

**STRONG SHOULDERS
WILL MAKE YOU
STRONGER AT CHEST
PRESSING EXERCISES
TO HELP BUILD THE
ULTIMATE CHEST.**

WHY DUMBBELLS ARE BEST FOR SHOULDER DEVELOPMENT

- Dumbbells can be used unilaterally or bilaterally to better isolate muscle groups or increase the demands on the stabiliser and accessory muscles in the exercise.
- Dumbbells make it impossible for the stronger side of your body to dominate the movement which leads to better symmetry.
- As each dumbbell is moved independently of the other they promote more balanced muscle strength and size development. ■



HIIT IT HARD FROM THE START

New research from a team of kinesiologists at McMaster University, the findings of which were published in the journal PLOS ONE, shows that more intense, short bursts of exercise in the form of high-intensity interval training (HIIT) is more enjoyable than moderate exercise. The study examined changes in enjoyment

of HIIT workouts versus moderate continuous training over the first six weeks of an exercise programme. The researchers found that at the beginning of the training, sedentary young adults in the HIIT group reported similar levels of enjoyment to those in the moderate exercise group, but as training progressed and the participants grew stronger,

enjoyment for the HIIT group increased. Levels for the moderate group remained constant and lower. According to Jennifer Heisz, assistant professor in the Department of Kinesiology at McMaster and lead author of the study, "enjoyment during these first weeks of adopting a new exercise programme may be especially important for preventing dropouts."

20

THE NUMBER OF MINUTES OF MODERATE EXERCISE NEEDED TO HELP REDUCE INFLAMMATION IN THE BODY, according to researchers at the University of California, San Diego. The study findings suggest that "exercise doesn't have to be tremendously hard for you to see health benefits from it," said study author Suzi Hong, an associate professor at the university. During the study, researchers found a 5 percent decline in immune cells linked to inflammation in those who exercised. The study was published online in the journal Brain, Behavior, and Immunity.

TRAINING

HOW SCIENCE & RESEARCH CAN IMPROVE YOUR TRAINING



SPRAY AWAY MUSCLE PAIN

Muscle aches and strains are a fact of life for many active people, but Deep Heat Spray and Deep Freeze Spray can help ease these muscular pains. Deep Heat Spray provides rapid pain relief for muscular aches and pains. It is rapidly absorbed and the spray application means rubbing and massage is not necessary. Deep Freeze Spray is a fast-acting spray used to relieve pain from muscular aches and spasms. It cools the area of application, providing relief from pain, stiffness, sprains and bruises. Deep Freeze Spray represents a modern version of the traditional ice pack used to reduce swelling, with the added benefit of the analgesic property of menthol. **For more info visit www.deepheatsa.co.za.**

7.7%

The annualised growth of payments to on-demand fitness services in the United States, according to new data from credit and debit transaction analytics firm Cardlytics. Many subscribers to these on-demand fitness options are siphoning spend from traditional gym contracts, the data shows, with spending for on-demand fitness now exceeding that at yoga and Pilates studios.



SHUT IT OFF!

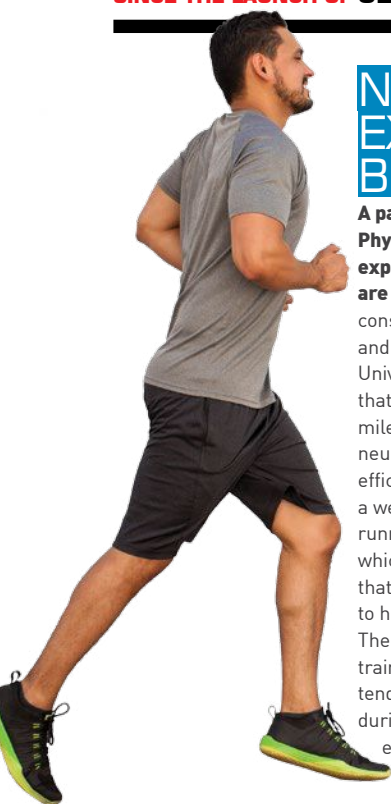
Michael Rebold, Ph.D., assistant professor of integrative exercise science at Hiram College, in conjunction with researchers from Bloomsburg University of Pennsylvania, recently published studies in *Computers in Human Behavior* and *Performance Enhancement & Health* on the subject of cell phone use during

training. According to Rebold, talking or texting on a cell phone during exercise will lower the intensity of a workout and also affects balance by reducing postural stability by up to 19 percent. Listening to music on a cell phone, on the other hand, has no notable impact on postural stability during exercise, according to the researchers.



30,000,000

THE NUMBER OF HEALTH AND FITNESS SESSIONS BOOKED SINCE THE LAUNCH OF **CLASSPASS** IN JUNE 2013.



NEWBIE RUNNERS EXPERIENCE BETTER BURN

A paper published in the *Journal of Applied Physiology* shows that low-mileage runners expend more energy during training as they are less efficient. The research team, which consisted of Jasper Verheul, Adam C. Clansey and Mark J. Lake from Liverpool John Moores University in the United Kingdom, determined that runners who consistently logged high mileage (27 miles per week) showed more neuromuscular changes that improve running efficiency than the low-mileage runners (9 miles a week). They also found that high-mileage runners experienced lower muscle activity, which increased proportionately with speed, and that their tendons acted in a spring-like manner to help propel them forward more efficiently. The researchers concluded that "high-mileage training leads to changes in the muscles and tendons that likely reduce energy expenditure during running, and these adaptations are enhanced the faster you go."



HIIT DIABETES

A new study, the findings of which were published in November 2016 in the journal *American Journal of Physiology: Heart and Circulatory Physiology*, suggests that a single session of interval weight training can decrease a person's risk of type 2 diabetes complications, particularly vascular damage. The findings show that training with weights significantly improves cardiovascular system function, even after one session, which is further correlated with a smaller chance of developing heart disease.



OUTSIDE-IN FITNESS TREND

Outdoor training has been one of the most popular health and fitness trends for the past few years and now gyms are taking advantage. As an example, **BioFit** is a new indoor gym in London that is designed entirely from natural products. All of the equipment is made from timber and themed according to outdoor environments like the jungle, with a giant forest wall and vegetation hanging from the ceiling. Watch out for this trend in SA!

30%

The decreased risk of dying, expressed as a percentage, that weekend warriors and "insufficient exercisers" experienced over those who were inactive, according to research conducted at Loughborough University in England. Regular exercisers lowered their risk by 35 percent. The researchers used info from surveys by trained interviewers conducted on nearly 64,000 adults in England and Scotland from 1994 to 2008 to show that even moderate amounts of exercise below the minimum recommended threshold have significantly greater health benefits than previously thought.



MORE THAN MUSCLE **NUMEROUS STUDIES THAT TESTED PARTICIPANTS BEFORE AND AFTER PERIODS OF CONSISTENT EXERCISE DEMONSTRATE THAT AN ACTIVE LIFESTYLE IMPROVES MEMORY AND ATTENTION SPAN, AND LEADS TO HIGHER INFORMATION PROCESSING AND COGNITIVE SPEEDS.**

MOVE OVER SPINNING,

THE ASSAULT BIKE IS THE NEW CALORIE-CRUSHER ON THE SCENE



For years spinning was considered the queen of cardio for its ability to blast calories and get the sweat pumping, but no more.

The air bike concept, also known as a fan bike, has been around for years, but it wasn't until one company sought to improve on the original design that air bikes took the reigns as your gym's best calorie-crusher.

The company in question and the model everyone is using, from CrossFitters to elite athletes, is called the Assault Bike.

The Assault Bike uses a 27-inch steel fan to create unlimited resistance, which is the secret to its effectiveness – the harder you work, the greater the resistance.

This happens when the torque generated from the pedals and/or the arm levers is transferred to the fan at the front of the bike. As the fan blades spin, the air they move against provides resistance back to the rider. Hence, the harder you push it, the more resistance you experience.

THIS VERSATILE EXERCISE TOOL ALSO OFFERS A VARIETY OF WORKOUT OPTIONS.

- Full-body pedal, push and pull workout
- Rest your feet on the oversized foot pegs for an all-arm upper-body sessions
- Crunch the pedals for a leg cardio-strength mash-up

KEEP TRACK

- The Assault Bike console offers a heads-up display via LCD technology to deliver easy-to-read information.
- Large buttons and quick keys enable faster access to the on-board programmes, while the screen is packed full of useful data feedback.
- Simultaneously monitor heart rate, speed, RPM, time, watts and calories.
- On-board programming allows you to jump into a workout with minimal fuss, or fully customise your session on the bike. Choose from high intensity intervals, or set a target distance or Watt goals.



"Beware of copies, make sure you purchase a genuine Assault Bike"



Workout options are endless, too.

AN ASSAULT ON CALORIES!

■ CARDIO CRUISE

Easy pedal, push and pull for a light cardio session to warm up or cool down.

■ RECOVERY PEDAL

Real recovery is about more than rest. If you aren't mobilising joints and promoting blood flow, you're doing it wrong. The Assault Bike is a great way to get the entire body moving.

■ TURN IT UP WITH AN ASSAULT TABATA

20 seconds of all-out effort with 10 seconds of rest, performed 8 times. Rest between each Tabata, repeat for a total of up to 5 rounds (if you dare!)

■ HIGH-INTENSITY ASSAULT

The Assault Bike comes into its own during short-duration, high-intensity intervals.

Try one of the following:

BEGINNER BLAST

Warm-up	5 minutes @ 5/10 effort
Intervals	15 minutes of 15 seconds hard, 45 seconds easy
Cool-down	5 minutes @ 5/10 effort

MODERATE MELTDOWN

Warm-up	5 minutes @ 5/10 effort
Intervals	15 minutes of 30 seconds hard, 30 seconds easy
Cool-down	5 minutes @ 5/10 effort

ADD 1 CALORIE EMOM

Warm-up	5 minutes @ 5/10 effort
Aim to burn an extra calorie at each subsequent minute interval, until you can no longer achieve your goal.	
Cool-down	5 minutes @ 5/10 effort

WARNING: Start slow and gradually build to sustain a 20-30 workout.

PYRAMID INTERVALS

Warm-up	5 minutes @ 5/10 effort
Interval 1	10 sec sprint, 50 sec rest
Interval 2	20 sec sprint, 40 sec rest
Interval 3	30 sec sprint, 30 sec rest
Interval 4	40 sec sprint, 20 sec rest
Interval 5	50 sec sprint, 10 sec rest
Interval 6	40 sec sprint, 20 sec rest
Interval 7	30 sec sprint, 30 sec rest
Interval 8	20 sec sprint, 40 sec rest
Interval 9	10 sec sprint, 50 sec rest
Cool-down	5 minutes @ 5/10 effort

POWER EMOM PROGRESSION

Warm-up	5 minutes @ 5/10 effort
Add 10 watts of power to each interval, every minute on the minute, until you can no longer sustain your effort.	
Cool-down	5 minutes @ 5/10 effort

ASSAULT METCON

Perform 10 rounds of 40 seconds of all-out effort on the bike, followed by 40 seconds of a different bodyweight exercise of your choice for each round. Rest 20 seconds between rounds.

Want to know more? Visit www.mifitness.co.za or Phone: 011 704 6711 Email: info@mifitness.co.za

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POWERCORE XPL700 HOME TREADMILL

3hp DC Motor, 22km/h Max Speed, Max Incline: 20%.

FLUID ROWING MACHINES

Fluid rowers engage the rider throughout each workout by replicating the sight, sound and feel of real on-water rowing. Close your eyes and you could be on the river.



AIR RUNNER

ASSAULT AIR RUNNER

NON-MOTORIZED, ZERO ELECTRICAL CONSUMPTION!

Built with steel frame, and a slat running belt surface to last up to 240,000km... that is not a typo.

LAUNCHING MAY 2017



ASSAULT AIR BIKE

The most effective cardio machine available!

USED BY THE BEST



AS SEEN ON



COMMERCIAL GYM SOLUTIONS

COMPLETE WALL TO WALL SOLUTIONS FOR AN SIZE GYM

- Assistance with Gym Planning, & 3D Floorplans
- We supply the widest range of Gym Equipment in South Africa at the most affordable prices in South Africa



USE THIS COUPON CODE TO GET 10% OFF ALL ONLINE ORDERS: **fitmag2017-2**



YOUR PERSONAL EFFORT MONITOR

Myzone is an accurate exercise tracker that helps you get the most of each workout. Myzone IDENTIFIES, ADAPTS, REWARDS training zones and displays that information on your SMART PHONE or on a screen at a facility that has Myzone.



FOR THE FACILITY

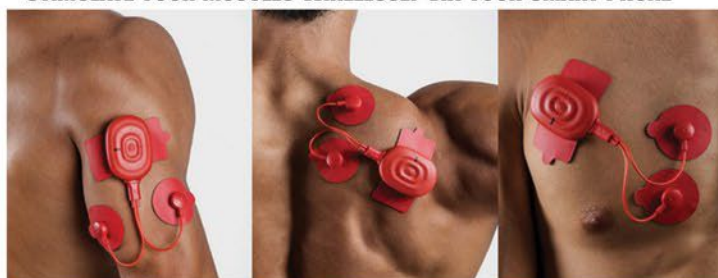
Display LIVE TRAINING DATA
Motivate Your Members
Increase Membership Retention
Track Your Members Training

* Ask one of our consultants for more information on MYONE for your facility.



POWERDOT

STIMULATE YOUR MUSCLES WIRELESSLY VIA YOUR SMART PHONE



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THE BEST FORMS OF EXERCISE TO BURN THE MOST CALORIES

WE ALL WANT THE MAXIMUM REWARD FOR OUR EXERCISE EFFORTS, WHETHER THAT IS THE MOST MUSCLE GAINED OR THE GREATEST AMOUNT OF WEIGHT LOST. WHEN IT COMES TO WEIGHT LOSS AND FAT LOSS, THE MAGIC METRIC THAT EVERYONE CHASES IS TOTAL CALORIES BURNT PER HOUR.

We do this for a number of reasons, the most prominent of which is an attempt to create a calorie deficit when we combine exercise and a calorie-controlled eating plan. The other main reason is that most of us are strapped for time and often can't exercise for more than 45 minutes to an hour. We therefore want to get the most from our time in the gym.

BOOST THE BURN

» By Pedro van Gaalen, Editor

THE NUMBERS GAME

In this regard, it's important to understand that not all exercises are created equal and the total number of calories consumed is also related to the manner in which you perform the exercise and not just the type of exercise you choose.

Take running as an example. Running for an hour at a slow pace will burn fewer calories than an hour-long run in the mountains, while an interval

track session that lasts an hour will burn even more than the mountain run.

The key here is intensity – the longer you can maintain a higher intensity, the more calories you'll burn. There are a few other nuances to this equation, though, like environmental factors and the addition of resistance and the number of muscle groups incorporated into specific exercises, which means that

not all exercises are created equal when it comes to blasting calories. For instance, non-weight bearing exercises such as swimming or cycling have a lower calorie-per-hour consumption rate than weight bearing exercises such as running.

With that in mind, what should you focus your efforts on when trying to get the most benefit from your exercise? **We share our top 5 forms of training in this regard.**

RUNNING

Based on numerous studies, most experts agree that a person of average weight burns about 100 calories per mile (1,600m) of running. That figure can vary slightly if a runner weighs more or is less efficient as both factors will require more energy to cover the same distance. However, the figure tends to remain constant regardless of speed.

Yes, running a mile fast or slow will burn roughly the same number of calories, but the longer you can sustain the more intense effort for, the more calories you'll burn per unit time. Stated differently, jogging for an hour will likely get you 8km from

where you started, which would require about 500 calories to meet your energy requirements, whereas a fast runner could cover in excess of 16km in the same time, thereby burning up to 1,000 calories.

For this reason, it's a better idea to perform a session of intervals than a steady-paced easier run, regardless of your proficiency as a runner. Combining bursts of speed with shorter active recovery intervals will ensure even a less-fit runner covers more ground. Obviously, sustained all-out race efforts will burn the most calories, but this is neither practical nor advisable on a daily or even weekly basis.

"RUNNING AT AN AVERAGE PACE OF JUST UNDER 5MIN/KM CAN BURN IN EXCESS OF 900 CALORIES IN ONE HOUR, DEPENDING ON YOUR WEIGHT, THE TYPE OF ROUTE YOU ARE RUNNING AND OTHER ENVIRONMENTAL FACTORS."

900*
CALORIES



KETTLEBELL TRAINING

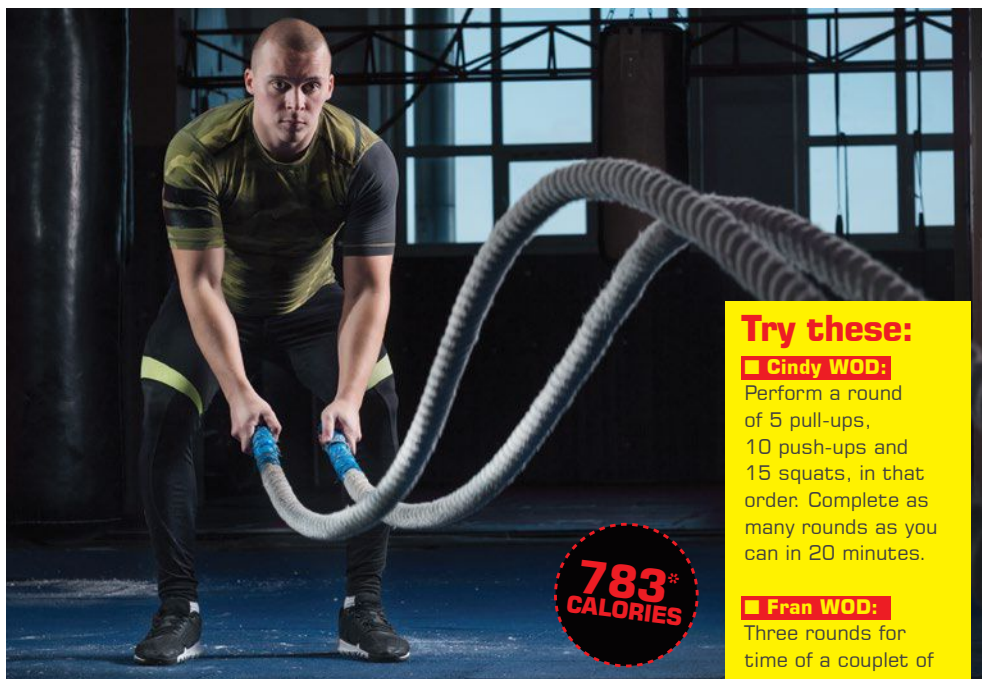
The American Council on Exercise (ACE) conducted a study on the ability of kettlebell training to burn calories.

Researchers determined that participants were burning at least 20.2 calories per minute, which works out to a staggering 1200 calories per hour of non-stop exercise. This makes it one of the most effective exercises, minute-for-minute when it comes to burning calories. This is due to the fact that kettlebell training incorporates multiple muscle groups per exercise.

1200*
CALORIES



*PER HOUR, ON AVERAGE



783*
CALORIES

CROSSFIT

A similar outcome was seen in a study conducted by Kennesaw State University, which determined that a common CrossFit WOD known as Cindy, which uses only bodyweight, can burn 261 calories per session. However, this WOD lasts just 20 minutes, which equates to a calorie consumption rate of 783 per hour.

Add some weights and an Olympic bar and that figure climbs significantly, as witnessed in a study performed at the University of Wisconsin.

Researchers at the university's La Crosse's exercise physiology programme monitored 16 healthy and fit volunteers as they performed the Donkey Kong and Fran CrossFit WODs. The men burned nearly 21 calories a minute while women burned just over 12, with participants reaching about 80 percent of their VO2max. Obviously this level of effort is hard to sustain for an hour, but if you're capable of doing it you could burn up to 1260 calories an hour.

Try these:

■ Cindy WOD:

Perform a round of 5 pull-ups, 10 push-ups and 15 squats, in that order. Complete as many rounds as you can in 20 minutes.

■ Fran WOD:

Three rounds for time of a couplet of barbell thrusters and pull-ups with a rep structure of 21-15-9 per round.

■ Donkey Kong WOD:

Three rounds for time of burpees, kettlebell swings, and box jumps with a rep structure of 21-15-9 per round. Between each round, perform 30 stair steps.

HIWT

Another form of training that is similar in nature to CrossFit is high-intensity weight training (HIWT). These workouts incorporate complex, compound movements that can include barbell or dumbbell complexes, circuits or metcons, which are also great ways to boost your overall calorie consumption rate and assist with weight loss.

Any exercise performed against resistance that requires complex compound movements – those that incorporate

multiple muscle groups into one movement – will always deliver better calorie-per-hour consumption rates than simple, single joint movements.

Research out of Azusa Pacific University demonstrated that a 6-minute metcon-style workout that involved a 1-minute warm-up, a 4-minute workout, and a 1-minute cool down burned an average of 63.2 calories during the workout. Repeat that 10-12 times (take shorter recovery breaks between intervals) for an hour-long session and you'll burn more than 650 calories.



650*
CALORIES

WORKOUTS
INCORPORATE
COMPLEX,
COMPOUND
MOVEMENTS
THAT CAN
INCLUDE
BARBELL OR
DUMBBELL
COMPLEXES,
CIRCUITS OR
METCONS



1000*
CALORIES

S.W.E.A.T. 1000

S.W.E.A.T. stands for Specialised Weight Endurance Athletic Training, with the 1000 representing the calories you're able to burn in a standard one-hour workout.

This is achieved by integrating the components of interval training, functional training, core stability work and agility training with all-out sprints or steep incline walking on specialised treadmills. If you put everything into an hour-long dynamic, action-packed class, you'll certainly become a calorie-incinerating machine.

*PER HOUR, ON AVERAGE

AFTER-GLOW EFFECT

But the burn doesn't stop when your session ends. The other benefit of higher intensity training is the so-called 'afterburn effect', which is the metabolic process that happens after a tough session where the body works to return to a state of homeostasis.

To illustrate this effect, the participants in the Azusa Pacific University burnt an additional 297 calories after their six-minute exercise session. This effect has been corroborated in a number of other studies, including one published in Medicine & Science in Sports & Exercise, which found that the longer that subjects

walked at 70 percent of VO2max, the longer it took for their metabolic rates to return to pre-exercise levels.

Similarly, in a study published in Medicine & Science in Sports & Exercise, triathletes who cycled at 75 percent of their VO2max for 20 minutes burned more calories after their workout than they did after cycling at just 50 percent of VO2max for 30 or 60 minutes.

In terms of running, one study suggests that if you burn 720 calories running at 80 percent of your VO2max, as opposed to burning 720 calories running slower at 60 percent of your VO2max, your base rate of calorie

consumption will remain elevated by 15-25 percent for up to 24 hours.

As such, researchers consistently find that more intense exercise leads to a greater afterburn effect, which means you're getting more benefits before and after your training when you choose the right type of exercise and perform it at the highest possible intensity. ■

RESEARCHERS CONSISTENTLY
FIND THAT MORE INTENSE
EXERCISE LEADS TO A
GREATER AFTERBURN EFFECT.





JUGGLING THREE DISCIPLINES

These are pertinent questions and getting the answer wrong can mean poor performance on race day, overtraining or, worse, injury.

At Embark our coaches

help many first-timers reach the finish line – for an event like a 70.3 we work to a six-month programme. This is divided into four phases and each phase has a specific purpose.

Some of the phases have two training blocks and others only one. A block is usually a four-week cycle, with three weeks of a progressive build, followed by one week of active recovery or taper. Every block must include recovery because without this the body can't adapt and keep up with the progression, which ultimately ends in injury.

Phase one is the base preparation phase. It lasts eight weeks (two blocks) and is the lower intensity base of the progressive program. It's mostly performed in the aerobic conditioning zone (Z2+Z3*). Athletes cannot afford to dismiss this vital training intensity because it provides the physiological foundation that enables our bodies to handle the higher intensities and volumes as the competitive phases approach. Basically, the bigger the base, the better you'll race.

Only increase your distance on the run by 10-15% each week (the swim and bike can be more progressive). After three weeks we ease off and take a recovery week.

*KEY TRAINING ZONES

ZONE 1 (Z1)

Warm up and cool down.
Can talk with ease

ZONE 2 (Z2)

Breathing is quicker: Can still talk,
but are aware of your breathing

ZONE 3 (Z3)

Short sentences possible, but
would rather not talk

ZONE 4 (Z4)

Rapid breathing, can't talk

ZONE 5 (Z5)

Max effort.
Can't even consider talking

By week nine athletes move into the base transition phase – also an eight-week phase. This phase focuses on anaerobic conditioning or threshold training. We refer to this as tempo or pacing (Z4). We will be mixing this in with our Z2 and Z3 training, but will do a lot more of it once we have built our base. To increase the intensity, we add in track running, hill training for running and biking, and more tempo work in the swim. Although the sessions are still progressive

in duration and distance, we begin to add elements of speed within the sessions. An example for a long bike ride would be to ride all the hills hard (Z4) and ride steady (Z2/Z3) on the downs and flats. In this phase our long runs have increased but are still in Z2/3 zone. Biking volume doubles and swimming increases by roughly 33%.

Phase three is about race preparation and it's four weeks (week 13 – 16 of the programme). The most demanding sessions are the aerobic capacity (Z4) sessions as the intensity is high and duration is somewhat long. Repetition intervals are from 2-8 mins in length with the total volume of any workout no more than 15-21 minutes at this level. Our track running sessions, speed swimming sessions and spin classes are examples of this zone. Athletes will do lots of this intensity work in this phase to develop their aerobic and anaerobic conditioning.

Although distances are still increasing in this phase, athletes start to include 'brick' sessions (back-to-back disciplines in training). This allows them to exercise for longer periods of time and at higher intensities in preparation for the race. An example of a brick session would be a 40km ride followed by a 5km run, and then another 40km ride and 5km run.

The final phase before the taper and rest week is the peak transition phase. This phase pulls everything together. Aerobic capacity is high intensity, short duration training, heart rates may reach 100%! These sprint intervals, when combined with the extensive endurance work, are the icing on the cake. These are the speed-work sessions, like 10x400m after a decent warm up, followed by an easy cool down. On the longer bike sessions athletes would ride 10x1min flat out, with ample recovery in between. This phase ends with athletes able to do the entire race bike/swim distance in a single session, which gives them both the mental and physical confidence to go to the race knowing they're prepared and ready! ■



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founder of Embark triathlon
coaching www.embark.co.za

■ **ONE OF THE COMPLEXITIES OF TRAINING FOR A MULTIDISCIPLINARY EVENT LIKE AN IRONMAN OR 70.3 RACE IS BALANCING THE VOLUME AND INTENSITY OF THREE DIFFERENT SPORTS. WHEN SHOULD YOU DO WHAT; HOW MUCH OF EACH AND AT WHAT INTENSITY, HOW OFTEN AND ARE YOUR BLOCKS OF HIGH-INTENSITY TRAINING DONE ACROSS ALL THREE DISCIPLINES AT THE SAME TIME?**

» By Werner Beukes, Deputy Editor

WEIGHING IN ON THE DEBATE ABOUT WHERE TO LOOK WHEN SQUATTING

DIFFERENT HEAD POSITIONS DURING THE SQUAT INCLUDE:

■ UPWARD

Looking at the join between the facing wall and ceiling

■ STRAIGHT AHEAD

Looking at the reflection of your eyes in the mirror on the wall facing you

■ DOWNWARD

Looking at the intersection between the floor and the facing wall

HEADS UP

THE SQUAT IS CONSIDERED THE KING OF ALL EXERCISES AND THE GOLDEN STANDARD FOR STRENGTH IN THE GYM, AND FOR GOOD REASON. THIS TRIED-AND-TESTED COMPOUND MOVEMENT IS ONE OF THE MOST PRODUCTIVE EXERCISES AROUND, NOT ONLY FOR BUILDING THE BEST BODY BUT ALSO FOR THE VAST MAJORITY OF SPORTS WHERE YOU NEED TO RUN FASTER OR JUMP HIGHER.

The squat is synonymous with developing the quads, hamstrings, glutes and hips – all the muscles responsible for physical prowess and peak performance in a variety of sports, from speed, power and strength, to endurance.

However, not everyone should perform a squat as it requires a certain level of mobility at the hips, the spine and shoulders, which some people lack. Each athlete may also have differing

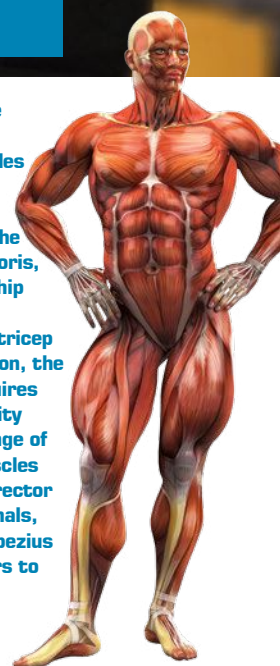
objectives for including the squat in their programme. While powerlifters aim to lift the most weight, for example, bodybuilders are interested in using the correct technique for developing larger muscles.

The structure of squat sessions may therefore vary in terms of reps and sets, but one thing that remains constant is the correct form and technique required to execute it safely and effectively. This is a

topic that has been covered extensively on the pages of this magazine, but recent research has brought back into focus a crucial yet often overlooked component of performing the perfect squat.

There has always been considerable debate regarding the correct head position when squatting. The three options include looking up, gazing straight ahead or looking down. Which, then, is correct?

Scientists have estimated that over 200 muscles are activated during a squat. These include the quadriceps femoris, hip extensors, hip adductors, hip abductors and triceps surae. In addition, the squat also requires isometric activity from a wide range of supporting muscles including the erector spinae, abdominals, rhomboids, trapezius and many others to keep the trunk stable during the movement.





UP, STRAIGHT OR DOWN?

For record-holding powerlifter Chad Wesley Smith, technique in squatting will differ from person to person. "Not everybody's technique will be the same. Individual body dimensions, leverages, strengths and weaknesses will dictate what technique is most effective for you."

Great technique for Smith starts with a great setup. But where should you put your head? According to a study involving football players using the front barbell squat (D.V. Donnelly et al., "The effect of the direction of gaze on the kinematics of the squat exercise," Journal of Strength and

Conditioning Research, 2006) a downward-looking head position produced an 8% greater forward bend at the hips and a 2% greater forward flexion of the spine. The researchers found that this contributed to a greater stress load on the lower back and vertebral discs. An upward-looking head position, on the other hand, led to a loss of balance. The best head position, according to the study, is maintaining a level head position. It was recommended that lifters should watch themselves in the mirror while performing squats.

Irrespective of what exercise science dictates, some lifters still believe in a head-up position to

help maintain balance and to shift your weight onto the heels. In most cases, this preference is usually a consequence of inadequate hip flexor and/or ankle mobility, which causes a person to lean forward while performing the squat.

When tested, it was found that the head-up position during the squat extends the thoracic spine and compressive forces along the entire spine. Lifters should therefore keep their eyes at a fixed point on the horizon and not the ceiling. By doing this a lifter can keep his head in alignment with his spine for a better biomechanical position.

PRACTICAL & ANATOMICAL REASONS

According to Nuckols, most lifters' sticking point is anywhere from one to six inches above parallel when squatting. "The exact joint angles vary from person to person, but it occurs almost universally in the middle of the lift. Very few people get buried in the hole and don't even start coming up, and very few people miss once they break through the sticking point (unless they just lose their balance). Your goal when you start driving out of the hole is to put yourself in a good position when you reach your sticking point, and your goal through the sticking point is just to grind through as efficiently as possible."

People squat differently not only as a result of practical reasons, such as training for a specific sport but also anatomical reasons. "There are a multitude of differences in hip anatomy that can make people squat differently, including different hip socket depths, different angles of inclination of the neck of the femur, different degrees of rotation of the femoral neck about the shaft of the femur, and different positions for the hip socket on the pelvis. Throw in different femur lengths, varying degrees of ankle mobility, varying attachment points for the muscles around the hip, and different levels of strength in the prime movers, and you have a lot of factors that can influence how someone will squat best," says Nuckols.

WHY SQUAT? THE SQUAT IS ONE OF THE MOST WIDELY USED RESISTANCE EXERCISES IN THE FIELD OF STRENGTH AND CONDITIONING BECAUSE IT ACTIVATES THE LARGEST, MOST POWERFUL MUSCLES IN THE BODY AND IS OFTEN REGARDED AS THE GREATEST TEST OF LOWER-BODY STRENGTH.

WHAT IF YOUR GAZE IS INCORRECT?

Trainer and author Greg Nuckols, who has taught hundreds of lifters from different experience levels and in varying sporting codes about the biomechanics of the squat, is philosophical about where to gaze when you perform a squat.

According to Nuckols, no one is going to point a gun at your head if your gaze is incorrect. "The best position is the one that lets you train the hardest and the most consistently."

In his popular 'How to Squat: The Definitive Guide', Nuckols says the following: "People obsess about head position to a potentially unhealthy degree. They opine that looking up will strain your neck or damage your cervical spine over time, and they posit that looking down will cause you to cave forward. I also see people talk about a Russian study that supposedly showed that looking up increased activation of the spinal erectors and hip extensors, while looking down increased activation of the quads.

I've looked for this study, and I've asked multiple people who've referenced it to send me a copy. So far I've come up empty, and I'm starting to think it simply doesn't exist."

He continues: "After 10 years in the sport, I've literally never seen a neck injury from squatting, and I've seen many successful squatters look up, down, or straight ahead."

So, what exactly does Nuckols suggest? "Here's the important part: Find one point to focus on, whether that be 10 feet in front of you on the floor, somewhere on

the wall, or at the juncture of the wall and the ceiling. Focus intensely on that one point throughout the lift. This will help you keep your balance and avoid being distracted by what's going on around you."

If you've found a spot to look at and the weight shifts forward and you're about to lose your balance, Nuckols suggests that you drive your traps aggressively back into the bar. "When you do that you are simultaneously fighting to extend your hips and drive the bar back."

TAKE-AWAY POINTS

WHAT NOT TO DO WHEN SQUATTING:

- The eyes-to-the-sky position is generally regarded as an incorrect head position. When you look up while squatting you compromise the posterior chain muscles that add stability to the normal structure of the spine.
- Looking at your toes when squatting can lead to bending over because where the eyes and the head go your body will follow. Bending the lower back forward can lead to spinal disc injuries.

THE RIGHT WAY TO SQUAT WOULD BE:

- To look straight ahead will ensure you don't compromise your neck because this position allows for the chest to stay upright and the trapezius muscles to be under the bar.
- Looking ahead is also conducive to better neck safety, maximal hip power and the spine will maintain its natural structure. ■

THINKING INSIDE THE BOX

REST

CROSSFIT'S FOUR-LETTER WORD

EVER HEARD THE SAYING "LESS IS MORE"? IT'S NOT VERY COMMON IN TODAY'S WORLD OF EXTREMES AND EXCESS, BUT IT'S ACTUALLY ONE OF THE MOST IMPORTANT CONCEPTS IN FITNESS AND EXERCISE. IT'S ALSO ONE OF CROSSFIT'S METHODOLOGIES – REDUCING THE AMOUNT OF TIME SPENT IN THE BOX THROUGH A HIGH-INTENSITY EXERCISE ROUTINE THAT DELIVERS DOUBLE THE RESULTS IN HALF THE TIME. HOWEVER, YOU'D BE FORGIVEN FOR THINKING THAT THIS IS NOT THE CASE GIVEN THE REPUTATION OF PASSIONATE CROSSFITTERS AND THEIR EXTREME DEDICATION AND UNRELENTING DESIRE TO TRAIN.



ABOUT THE AUTHOR: Julian Reichman-Israelsohn is the owner and head trainer at CrossFit Platinum

day to recover. However, with the exponential growth of CrossFit the competitive aspect of the sport has become an integral part of the CrossFit community. In the past this was dominated by the CrossFit Games and the Regionals (the qualifiers for the Games), but the new competition structure has made these events almost unreachable for the average CrossFit athlete in South Africa. This has spawned a thriving local competitive scene with numerous throwdowns and competitions held throughout the year. And as the physical and mental expectations of athletes rise during the Games, so the local competitions become increasingly more difficult. With the emergence of so many of these local competitions, many now make the mistake of confusing CrossFit for exercise – routines that focus on general physical preparedness (GPP) – with competitive CrossFit – the sport of fitness.

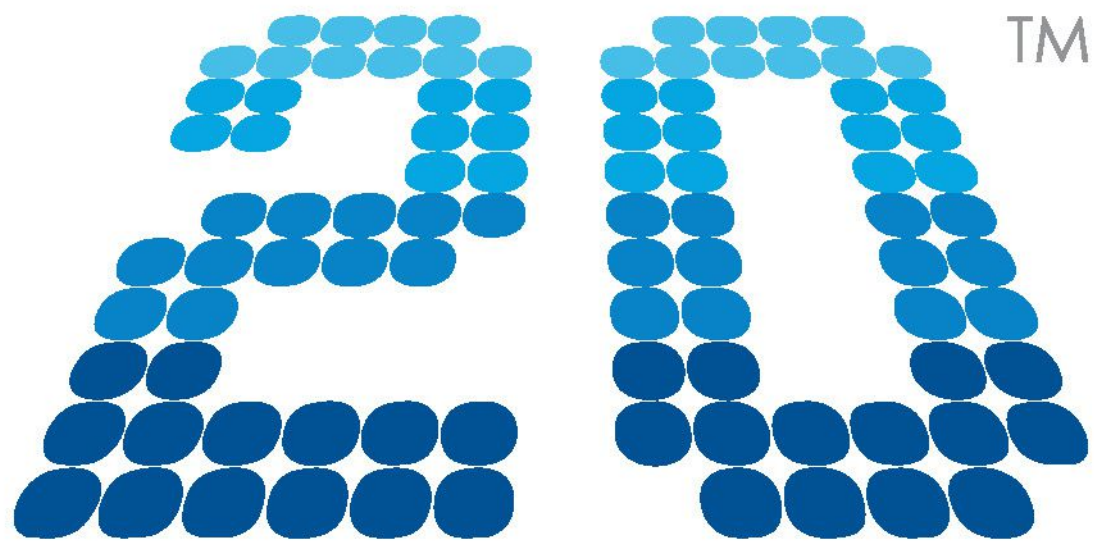
Even though these two avenues are totally separate entities, they have a common denominator – everyone involved in either avenue of CrossFit wants to improve themselves. There is always some strength, skill, gymnastic work, technique, or accessory work to be done that will help make you a better athlete, general CrossFitter, weekend warrior, or even just a healthier person. This is often where the problem of overtraining, or under-recovering creeps into the mix. The competitive CrossFitter is always trying to get bigger, stronger, faster and more dynamic. The general CrossFitter is also trying to better themselves in as many ways as possible, maybe

even chasing the elusive idea of one day completing a WOD Rx'd – performing all exercises in the WOD using the prescribed weight and reps. Both types of athletes become determined to achieve their goals by training harder, longer and more often. This, however, places more stress on the body, joints, muscles and nervous system due to the extra time spent in the box. What often happens is the athlete starts to sacrifice recovery time to spend more and more time in training, over and above their regular classes. When this happens they open themselves up to the risk of injury because they're constantly breaking the body down through training, but seldom give

their body the time it needs to repair itself through adequate rest. They become consumed and overwhelmed by the desire to achieve their goals and fail to focus on the process of being patient and allowing the body to adapt over time. It is only when we give our body the time it needs to become conditioned from the stress and loads being imposed on it that we can adequately progress.

The concepts of rest, recovery and overtraining all overlap in a small way. It is when athletes become consumed by the desire to get better at everything that overtraining – or, as some call it, under-recovery – becomes a real threat. Most training programmes will factor in some sort of recovery, be it rest days or active recovery days. Athletes can also use extra sleep (in addition to the minimum required amount), all the massage varieties, cold and ice therapy (cryotherapy) and performance nutrition to help the recovery process.

Even when coaches adhere to the CrossFit HQ schedule, or structure their own undulating programmes, many athletes don't take the concept of recovery seriously enough and choose to engage in other activities to stay active. In doing so they grossly underestimate the importance of giving their body sufficient time to recover. However, this is not unique to CrossFit – it is a cultural phenomenon seen in all sporting codes. Many endurance athletes, for example, also get sucked into the world of "more is better", until something gives, that is. And that something is usually some structure in the body – a muscle, tendon or bone. Others experience burnout which can manifest as hormonal imbalances or chronic central (CNS) fatigue. In many of these instances, where athletes are working toward a goal, rest becomes a mental game because it is often a challenge for the athlete to take time off. If they do, they usually panic and feel that they'll lose their 'gains'. However, contrary to this popular belief, **there is more value in rest and recovery than the time spent within the walls of the gym or out training. This is because it is during rest that the real benefits of our exercise routines are realised.** As such, rest should be a top priority, on par with the intensity and duration of your WODs. It should therefore have its place in any well-planned training programming; one where less is often more. ■



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THE BENCHMARK OF IMPROVED PERFORMANCE IS MOST OFTEN MEASURED AGAINST YOUR PREVIOUS BEST – A NEW PB IN A RACE OR A NEW HEAVIEST BENCH PRESS OR FASTEST WOD.

But what if you prefer to churn out a number of top performances during the course of a season? What if your measure of success is the ability to train or race hard on multiple occasions to deliver consistent results?

It's a pertinent question, especially for gym-goers like body builders or CrossFitters who often tend to train for prolonged periods of time at near-peak levels in a effort to become bigger and stronger. The same could be said of competitive amateur age-group athletes who compete in a race series, for example.

» By Pedro van Gaalen, Editor

SUSTAINING PEAK PERFORMANCE

■ PLAN TO PEAK

Due to the physiological demands of staying at near-peak levels of performance, it is necessary to understand the importance of programme periodisation, particularly in terms of balancing rest, training and competition or races. But if you get it right, it is possible to churn out multiple top results or efforts over a period of a few months, instead of peaking for just one or two races or periods in the year.

To better understand

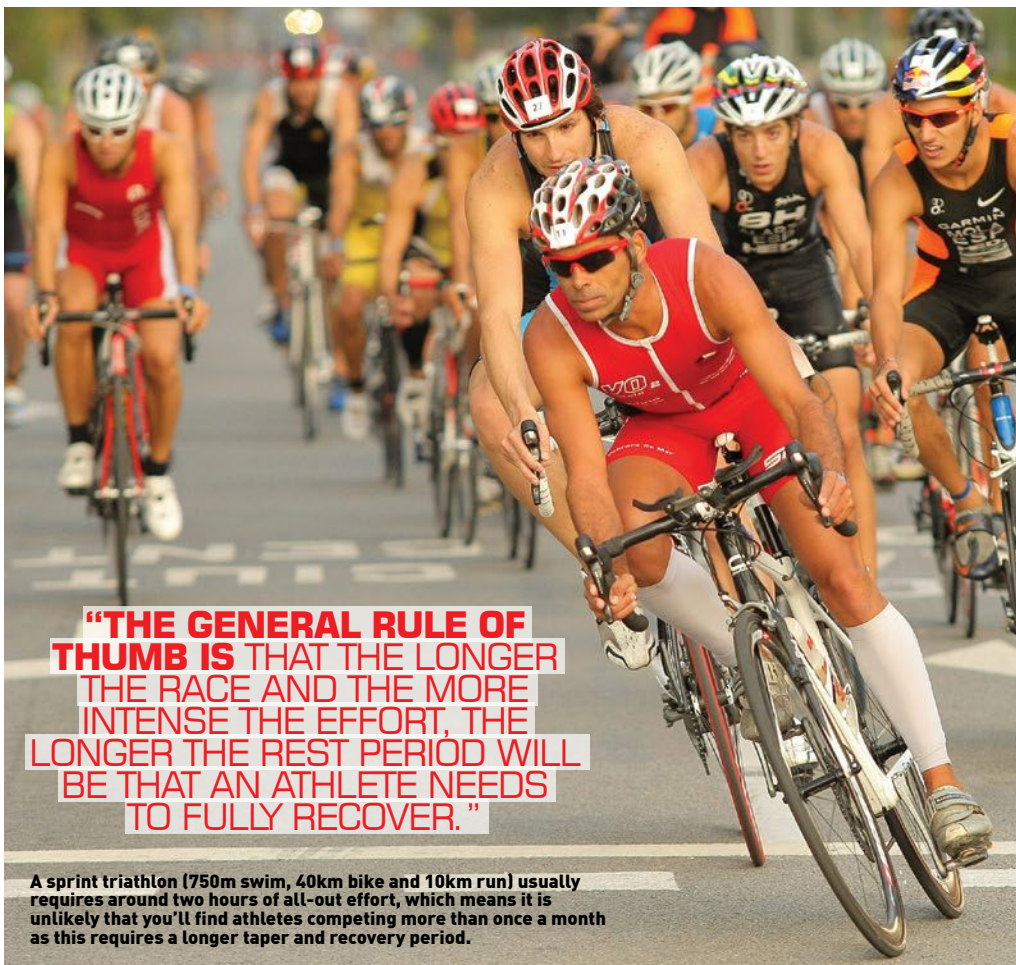
the process, planning and training required, Ian Craig, a Johannesburg-based exercise physiologist, coach and nutritional therapist, suggests that we take the lead of those who have perfected the art of maintaining peak performance throughout a season, namely professional endurance athletes.

"International athletes who compete in any type of race series that requires participation in multiple events, for example

ITU triathletes, Diamond League track athletes or professional cyclists, all follow periodised plans that balance periods of hard work in training and races with periods of rest and recuperation," explains Craig.

"These recovery periods can often be longer than your standard rest day or recovery period, especially at the end of a season ahead of base training, which is when pro athletes can rest for up to four to six weeks."

"INTERNATIONAL ATHLETES WHO COMPETE IN ANY TYPE OF RACE SERIES THAT REQUIRES PARTICIPATION IN MULTIPLE EVENTS ALL FOLLOW PERIODISED PLANS THAT BALANCE PERIODS OF HARD WORK IN TRAINING AND RACES WITH PERIODS OF REST AND RECUPERATION."



"THE GENERAL RULE OF THUMB IS THAT THE LONGER THE RACE AND THE MORE INTENSE THE EFFORT, THE LONGER THE REST PERIOD WILL BE THAT AN ATHLETE NEEDS TO FULLY RECOVER."

A sprint triathlon (750m swim, 40km bike and 10km run) usually requires around two hours of all-out effort, which means it is unlikely that you'll find athletes competing more than once a month as this requires a longer taper and recovery period.

■ ACTIVE REST

During this down time, Craig says that pro athletes aren't completely inactive, but rather focus on the act of recuperation. "This will include various activities, including 'prehab', cross training, Pilates, yoga, and/or core work, to name a few. They will also work on any weaknesses that may have presented during the race season, but this is normally determined by their coach."

He adds that this is also a period used to go back and look at the year, and then plan the year ahead to work around the season. "If your goal is to perform at peak levels multiple times a year, you need to establish these targets – events or periods of heightened work capacity – upfront and then build training phases around these dates," suggests Craig.

This is relevant to CrossFitters

who have to juggle a long season of Regionals, the Open competition, the Games, and then any number of independent competitions throughout the year. In the context of physique athletes, they may have multiple shows on their calendar, which are usually spaced out with extended periods of time between shows.

However, it is impossible to peak in April and then try to maintain form until August, as an example. "If you attempt this, it is highly likely that you'll become overtrained," says Craig. "The trick is to hit some degree of form early in the season, then pull back a bit. After a period of maintenance at near-peak levels, athletes then ramp up again for a good end to the season, especially if they compete in a race season or competition format that culminates in a final event."

■ PEAKS & TROUGHS

If this is your goal, Craig advises that you aim to perform at peak levels no more than once a month. "Once you hit form early in the season, you then aim to hit multiple peaks with an undulating periodisation model that includes a good taper before target races, events or sessions, then a reverse taper coming out of the event as you build back up to higher training intensities, before tapering down again for the next all-out effort."

However, there is a caveat to this approach in that longer events or races will necessitate longer periods between peak performances. "The general rule of thumb is that the longer the race and the more intense the effort, the longer the rest period will be that an athlete needs to fully recover," explains Craig. "In this context, middle distance runners,

MASTER THE REVERSE TAPER:

While there is no one-size-fits-all approach as everything depends on the importance of the race, the nature of the event and the duration. However, this is a general example of an ideal structure for athletes looking to target an event every six weeks, according to exercise physiologist, Ian Craig:

■ WEEK 1

If your event is on a Saturday, the first week back needs to be easy, with light work and low volume. Use this time to flush out exercise metabolites and restore biomechanical function with stretching, massage and mobility work. By the end of that week, an athlete can start to pick up again.

■ WEEK 2-3

Progressively build up, with the aim of peaking in training load (intensity or volume) in week 4.

■ WEEK 4

Peak week.

■ WEEK 5

Taper down to the next race or event.

By following the correct guidelines and listening to your body, Craig suggests that this format can be followed for up to several months. "The important elements to consider are how close can one go to events with high-load training, and how soon after can we get back to full training without overtraining," says Craig.

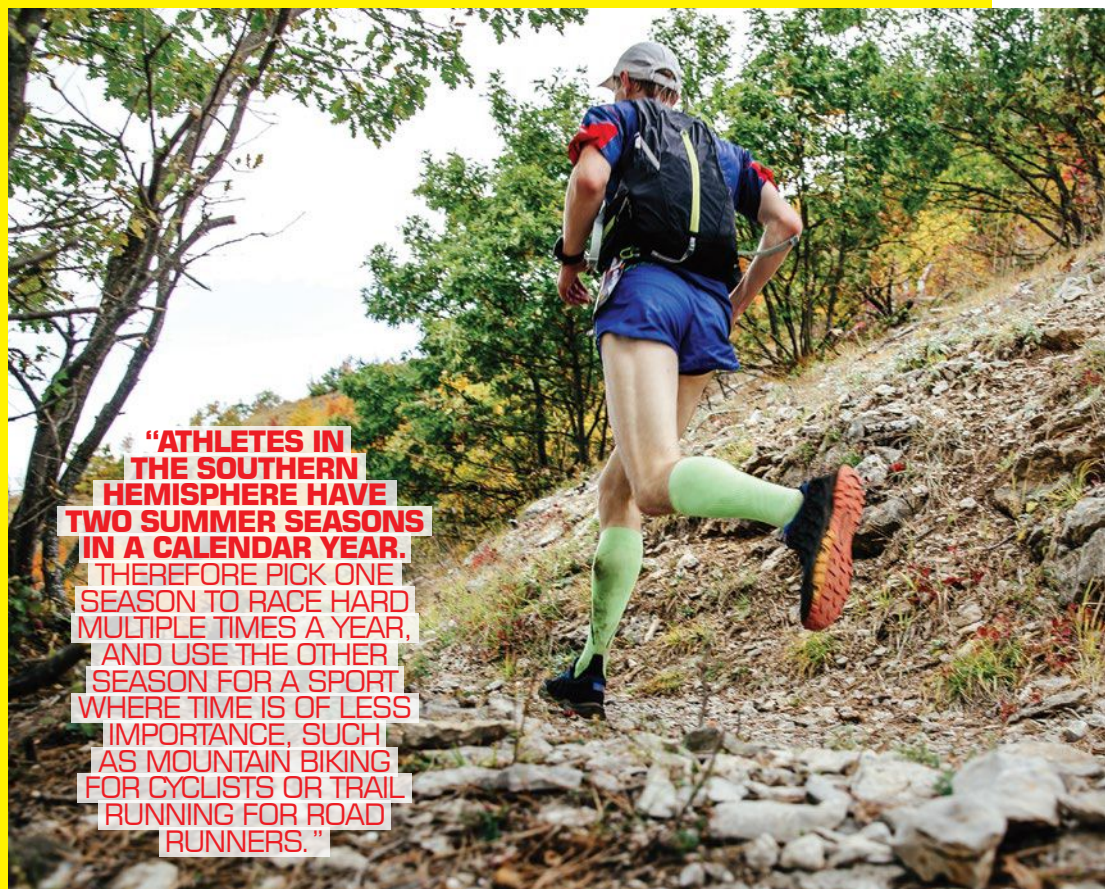
for example, who race for 30 minutes or less, can generally get away with up to two races a week in targeted blocks, before pulling back for a bit of a longer time period to peak again in a month or so. Marathoners, on the other hand, will usually have at least six to eight months between target races."

In contrast, a sprint triathlon (750m swim, 40km bike and 10km run) usually requires around two hours of all-out effort, which means it is unlikely that you'll find athletes competing more than once a month as this requires a longer taper and recovery period.

Additional considerations include the type of activity, as high-impact sports such as running or highly intense activities against resistance, executed over extended periods of time, like a full-day CrossFit competition, will have a much higher physiological cost. Those who train using single body-part, split weight training routines, on the other hand, can maintain peak intensities and work to failure for a longer period of time before requiring a taper or period of reduced training volume and intensity.



"Athletes using single body-part, split weight training routines can maintain peak intensities and work to failure for a longer period of time before requiring a taper or period of reduced training volume and intensity."



"ATHLETES IN THE SOUTHERN HEMISPHERE HAVE TWO SUMMER SEASONS IN A CALENDAR YEAR. THEREFORE PICK ONE SEASON TO RACE HARD MULTIPLE TIMES A YEAR, AND USE THE OTHER SEASON FOR A SPORT WHERE TIME IS OF LESS IMPORTANCE, SUCH AS MOUNTAIN BIKING FOR CYCLISTS OR TRAIL RUNNING FOR ROAD RUNNERS."

■ REAL WORLD APPLICATION

It can be difficult for amateur and recreational athletes to follow this approach, especially with the packed competitive events calendars we have here in sport-mad South Africa. There is always something going on. As such, the temptation to go out hard or mix it up with the best on stage at every opportunity is often too great.

"Unfortunately for these guys, the same principles apply. In fact, when you consider the additional stressors that amateur athletes face in their daily lives, it becomes even harder to find the balance of hard effort and recuperation required to hit your straps multiple times a year," continues Craig.

"These guys need to take the combined effect of work, life and exercise stress into account. This means you can't be hectic in all avenues of life and still compete at peak levels. A healthy dose of realism is required to manage expectations and the reality of your situation."

In addition, many recreational athletes who may be training for one or two big target events in the year often still want to compete in 'smaller' events on

a club level or among friends and therefore feel they need to train through a race. "However, to do the race justice you need to taper," asserts Craig. "If you don't, you won't peak. As such, if you enjoy racing more regularly and competing in whatever context, there needs to be a plan and that plan needs to be followed precisely. It's a fine balancing act. If you under do it or over do it, and do this multiple times, it will affect you over the course of the season."

Craig also advises recreational athletes to have an off-season. "Even with a properly periodised programme that is strictly adhered to, you can't race or compete indefinitely."

Craig offers one final piece of advice for anyone aiming to string top performances together throughout the remainder of the year: "You also need to take the environmental conditions in which you train and compete

into account," he says. For example, training and racing in hot and humid conditions has a huge physiological cost. "For those of us who live in the Southern Hemisphere, we have two summer seasons in a calendar year and trying to perform at peak levels across both periods will have implications. Europeans, on the other hand, tend to only need to manage a single season and can therefore invest more effort into those three to four months. Our challenge is therefore managing the heat as an additional variable in our planning and periodisation. I therefore advise my clients to pick one season to race hard multiple times a year, and use the other season to try something different, perhaps a related sport where time is of less importance, such as mountain biking for cyclists or trail running for road runners," he concludes. ■

"YOU ALSO NEED TO TAKE THE ENVIRONMENTAL CONDITIONS IN WHICH YOU TRAIN AND COMPETE INTO ACCOUNT. TRAINING AND RACING IN HOT AND HUMID CONDITIONS HAS A HUGE PHYSIOLOGICAL COST."

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SMITH MACHINE TRAINING

» By Pedro van Gaalen, Editor » Photography by Cindy Ellis » Performed by Jaco de Bruyn
» Shot on location at Planet Fitness Platinum Sandton www.planetfitness.co.za

IN OUR ON-GOING QUEST FOR ENHANCED AESTHETICS, THE ABILITY TO TARGET AND ISOLATE SPECIFIC MUSCLES OR GROUPS OF MUSCLES HOLDS GREAT VALUE. TO THIS END, MOST LIFTERS WHO TRAIN IN CONVENTIONAL GYMS OFTEN INCORPORATE MACHINES AND CABLE PULLEY SYSTEMS INTO THEIR TRAINING. MANY OF THESE TRAINING TOOLS HELP TO ISOLATE SINGLE-JOINT MUSCLES OR CONTROL MOVEMENT ALONG A PLANE THAT BETTER ISOLATES A TARGETED MUSCLE.

There is, however, one 'machine' that is grossly underutilised, mainly because it is misunderstood. That big rig in the corner of your local gym, known as the Smith machine, may seem intimidating, but once you get to know it you'll realise that it can benefit your regular gym routine in a number of ways.

The size of the Smith machine

belies its simplicity – it is basically a barbell that is fixed within steel rails. This means that movement is limited to the vertical plane – only straight up and straight down. The disproportionate size is needed to stabilise it because the manner in which it controls and limits movement means gym-goers can perform seriously heavy lifts.

It has, however, received a bad reputation in the broader health and fitness industry as it does not promote natural movement, which can lead to injury. The truth is, any weighted exercise not executed correctly or done for the wrong purpose has the potential to injure a lifter. As such, if you understand the Smith machine and use it for what it was originally intended, you can include this machine in your gym routine to achieve your aesthetics-based goals.

In fact, the deeper your understanding of this machine goes, the more you'll start to realise how versatile it. Yes, that means it's not just for the body builders out there, but with a few tweaks to certain moves, this can be an effective form of exercise to develop explosiveness.

■ BENEFITS & DISADVANTAGES

As the plane of motion is fixed many experts within the industry argue that the Smith machine forces your body and many of its joint structures to move in unnatural ways.

This is certainly the case for many compound movements such as the back squat, but with a few variations and

adjustments you can make exercises more effective at isolating specific muscle groups such as the quads. This happens as the guided motion of the Smith machine requires less input from stabiliser muscles.

However, in the same vein, this means that the Smith

machine is not an ideal tool to dedicate your focus to in the gym. When used correctly and in partnership with a comprehensive training plan it can provide additional benefit to a programme aimed at sculpting a better body. It can also help to add variety to a workout to limit stagnation and boredom.

■ A BRIEF HISTORY

The concept for the Smith machine we know and use today was developed by legendary American bodybuilder Jack LaLanne in the 1950s. It was then improved on by a man named Rudy Smith, for whom the machine is now named after, and was then put into mass production.

The barbell of the Smith machine has hooks that can be rotated around to secure or 'unlock' the bar from one of the many pegs that run up either side of the machine. This means the loaded barbell can be racked at any point in the movement which makes it a safer option when working with heavier loads.

There is also a height-adjustable safety latch system on all Smith machines that will 'catch' the bar at a specified height should the hooks miss the pegs.



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SMITH MACHINE TRAINING

SO, IF YOU'RE LOOKING FOR NEW WAYS TO ISOLATE SPECIFIC MUSCLE GROUPS TO SCULPT A BETTER BODY, THE FOLLOWING SMITH MACHINE EXERCISES ARE EXACTLY WHAT YOU'RE LOOKING FOR...

The nature of the Smith machine's design, with its guided vertical movement path, makes it a tool that will favour quad development over the hamstrings, especially during squatting and pressing movements.

This happens as the bar and weight are stabilised by

the rails, which decreases hamstring activation during certain lifts.

It is therefore important to use the machine for its intended purpose – to better isolate the quads – and to ensure adequate accessory work is done on the hamstrings to ensure no imbalances occur.



■ SMITH SQUAT

Position the bar on the back of your shoulders and grasp it on either side. Place your feet in front of the bar. Disengage the bar by rotating it backward. Squat down by bending your knees while dropping your hips down. Keep your back straight and your knees pointed in the same direction as your feet. Descend until your thighs are just past parallel to the floor. Extend your knees and hips to return to the starting position.

■ FRONT SQUAT

Position the bar on the front of your shoulders. Cross your arms over each other and place your hands on top of the bar. Place your feet under the bar. Disengage the bar then squat down until your thighs are just past parallel to the floor. Extend your knees and hips to return to the starting position.



BULGARIAN SPLIT SQUAT

With the bar on your shoulders place one leg on a bench or the elevated cross bar in the Smith machine (if it is high enough). Place the foot of your leading leg slightly in front of the bar. Disengage the bar and drop your body down by flexing the knee and hip of the leading leg until the knee of your rear leg almost makes contact with the floor. Extend your hip and knee to return to the starting position. Repeat for the required reps before switching legs.



SPLIT SQUAT

Position the bar on the back of your shoulders. Move one foot forward and place the forefoot of the other leg behind you. Disengage the bar and lower your body by flexing your knees and hips. Drop down until the knee of the rear leg is almost in contact with the floor. Extend your hips and knees to return to the upright position and repeat for the required reps before switching legs.

“DUE TO THE CONTROLLED VERTICAL GLIDE PATH OF THE SMITH MACHINE IT IS ESSENTIAL TO MAINTAIN AN UPRIGHT TORSO.”



STIFF-LEGGED DEADLIFT

Place a step or bench inside the frame. Stand upright on the platform, holding the bar with hands placed shoulder-width apart and your legs positioned hip-width apart. Lower the weight down by bending over at your waist. Keep your head up, back straight and knees slightly bent. Lower the bar as low as you can while maintaining a slight bend in your knees. Contract your glutes forcefully to return to the starting position and repeat.

STANDING CALF RAISE

Place a step under the bar. Position the bar on the back of your shoulders and the balls of your feet on the step with your heels extending off the side. Disengage the bar then raise your heels up as high as possible by extending your ankles. Lower your heels back down until a stretch is felt in the calves.



VARIATION: Single-leg standing calf raise

BACK



SWITCH IT UP: This move can also be performed using a reverse grip to get more bicep involvement and target your lats more than your upper and middle back.

■ HORIZONTAL PULL-UP (A.K.A. SUPINE ROW)

Position yourself under a fixed Smith machine bar positioned above knee height. Grasp the bar with a wide overhand grip. Extend your legs and place your heels on the floor in front of you. Hang under the bar with your back off the ground and your arms fully extended. Keep your body straight as you pull your chest up to the bar. Hold for a count and then slowly lower yourself back down.



A



B

■ RACK CHIN-UPS

Perform a horizontal pull-up as described but this time position your legs on a bench or the cross beam of the Smith machine, and maintain a V-shape between your torso and legs.



A



B

■ BENT OVER ROW

Bend over the bar (positioned at knee height) with a slight bend in your knees. Grasp the bar with a wide underhand grip. Disengage the bar and pull it up to your upper waist while keeping your back straight. Extend your arms and shoulders to return to the starting position.

CHEST

■ BENCH PRESS

Lie on a bench with your chest under the bar. Hold the bar with a wide grip. Disengage the bar and lower the weight to your chest. Press the bar back up.

ADVANCED MOVE: BUILD UPPER BODY EXPLOSIVENESS!

As you approach the top of the press, explode the bar upwards and let it go. Catch it again as it drops down. Be sure to have the safety latches in place above your chest and neck. This plyometric-type movement is great to develop power.



A



B



ADVANCED MOVE:

SHOULDERS



■ UPRIGHT ROW

Stand behind the bar positioned at mid-thigh level. Hold the bar with a shoulder-width overhand grip. Disengage the bar, stand up and pull the bar up to your neck. Lead the movement with your elbows.

CAUTION: Due to the guided movement of the Smith machine, it is easy to compress or impinge nerves in the shoulder area as it limits range of motion, which can lead to pain, inflammation and dysfunction. It is therefore important to only lift the bar using a wider grip than normal and to not force it up higher than is naturally possible to get closer to the chin.



A



B

"LIFT THE BAR USING A WIDER GRIP THAN NORMAL AND DON'T FORCE IT UP HIGHER THAN IS NATURALLY POSSIBLE TO GET CLOSER TO THE CHIN."

■ BEHIND-THE-BACK SHRUG

Stand facing away from the Smith bar. Hold the bar with hands positioned slightly wider than shoulder width using an overhand grip. Disengage the bar and raise (shrug) your shoulders up as high as possible towards your ears.



A



B

■ SEATED SHOULDER PRESS

Sit on a bench with the bar positioned in front of your shoulders. Grasp the bar with a wide overhand grip. Disengage the bar and press it overhead until your arms are fully extended.



A



B

■ KNEELING PUSH PRESS

Kneel on the floor with the bar at shoulder height. Grasp it with an overhand grip that is much wider than shoulder width. Pull your head back slightly as you dip down then explosively drive upward to help you push the bar up overhead.



ADVANCED MOVE:

ADVANCED MOVE: BUILD UPPER BODY EXPLOSIVENESS!

As you approach the top of the press, explode the bar upwards and let it go. Catch it again as it drops down. Be sure to have the safety latches in place above your head. This plyometric-type movement is great to develop power.

ARMS



A



B

■ BICEP DRAG CURL

Grasp the bar, placed at hip height, with a shoulder-width underhand grip. Raise the bar straight up so that your elbows travel back as you flex your arms. Raise (drag) the bar up to your upper abs or lower chest. Extend your elbows to return to the starting position.

ABS

■ HANGING KNEE RAISES

Hold the cross bar on the outer frame. Hang with your legs extended below you. Raise your knees up to your chest by flexing your hips.

ADVANCED MOVE: HANGING STRAIGHT LEG RAISES

Use straight legs to increase the difficulty of the move and to engage more of your core muscles during this exercise. ■



A



B



A



B

■ CLOSE GRIP BENCH PRESS

Lie on a bench with the bar above your chest. Hold the bar with a slightly narrower than shoulder width grip. Disengage the bar and lower it to your chest while keeping your elbows close to your body.



■ TRICEP DIP

Position the bar in line with the cross beam or place a bench parallel to the bar. Place your hands on the bar on either side of your hips with your feet on the cross beam or bench. Lower your body by bending your arms until a slight stretch is felt in your pecs or shoulders.



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2ND - 3RD JUNE 2017

HS DURBANVILLE AUDITORIUM

LANGENHOVEN STREET, DURBANVILLE

DAY 1 - FRIDAY 2 JUNE

LIVE JUDGING

ATHLETE REGISTRATION

R150.00 @ 12H00 TO 14H00

ATHLETE DIVISION ENTRY R300

MAIN SHOW @ 17H00

SPECTATORS ENTRY FEE @ R150, VIP @ R250

ROUND TRIP TICKETS FOR DAY 1 & 2 R250

VIP ROUND TRIP TICKETS FOR DAY 1 & 2 R400

- | | |
|-----------------------------------|--------------------|
| 1 NOVICE MEN U75KG | 21 OVERALL NOVICE |
| 2 NOVICE MEN O75KG | 22 OVERALL JUNIORS |
| 3 JUNIORS - U18 YEARS | 23 OVERALL LADIES |
| 4 JUNIORS - U23 YEARS U75KG | BEACH BIKINI |
| 5 JUNIORS - U23 YEARS O75KG | 24 OVERALL MEN'S |
| 6 LADIES BEACH BIKINI UP TO 163CM | BEACH MODEL |
| 7 LADIES BEACH BIKINI O163CM | 25 OVERALL MEN'S |
| 8 LADIES BEACH BIKINI O35 YEARS | COVER MODEL |
| 9 LADIES PHYSIQUE | 26 OVERALL MEN'S |
| 10 COUPLES | COVER MUSCLE |
| 11 MEN'S BEACH MODEL UP TO 175CM | MODEL |
| 12 MEN'S BEACH MODEL O175CM | |
| 13 MEN'S BEACH MODEL 35+ | |
| 14 MEN'S COVER MODEL UP TO 175CM | |
| 15 MEN'S COVER MODEL O175CM | |
| 16 MEN'S COVER MODEL 35+ | |
| 17 MEN'S MUSCLE MODEL UP TO 175CM | |
| 18 MEN'S MUSCLE MODEL UP TO 178CM | |
| 19 MEN'S MUSCLE MODEL O178CM | |
| 20 MEN'S MUSCLE MODEL 35+ | |

DAY 2 - SATURDAY 3 JUNE

LIVE JUDGING

ATHLETE REGISTRATION

R150.00 @ 08H00 TO 10H00

ATHLETE DIVISION ENTRY R300

MAIN SHOW @ 14H00

SPECTATORS ENTRY FEE @ R150, VIP @ R250

ROUND TRIP TICKETS FOR DAY 1 & 2 R250

VIP ROUND TRIP TICKETS FOR DAY 1 & 2 R400

- | | |
|-------------------------|---------------------------|
| 1 LADIES FITNESS BIKINI | 13 SENIOR MEN U60KG |
| UP TO 163CM | 14 SENIOR MEN U65KG |
| 2 LADIES FITNESS BIKINI | 15 SENIOR MEN U70KG |
| OVER 163CM | 16 SENIOR MEN U75KG |
| 3 LADIES FITNESS BIKINI | 17 SENIOR MEN U80KG |
| O35 YEARS | 18 SENIOR MEN U85KG |
| 4 MEN'S MUSCLE MODEL | 19 SENIOR MEN U90KG |
| PLUS UP TO 175CM | 20 SENIOR MEN U95KG |
| 5 MEN'S MUSCLE MODEL | 21 SENIOR MEN U100KG |
| PLUS UP TO 178CM | 22 SENIOR MEN O100KG |
| 6 MEN'S MUSCLE MODEL | 23 OVERALL BEST MEN'S |
| PLUS O178CM | ROUTINE |
| 7 MEN'S MUSCLE MODEL | 24 OVERALL MS PERSONALITY |
| PLUS 35+ | 25 OVERALL LADIES |
| 8 CLASSIC BODY BUILDERS | FITNESS BIKINI |
| UP TO 85KG | 26 OVERALL MEN'S MUSCLE |
| 9 CLASSIC BODY BUILDERS | MODEL PLUS |
| O85KG | 27 OVERALL CLASSIC |
| 10 LADIES FITNESS | BODY BUILDERS |
| 11 LADIES BODY FITNESS | 28 OVERALL TITAN (MEN) |
| 12 MASTERS | |

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TITAN NUTRITION ON EXPANSION DRIVE

The philosophy of Titan Nutrition, founded by George Wilhelm in 2007, is to offer the fitness market protein supplements of unmatched quality by manufacturing products that cut no corners in terms of purity and potency. The most modern suppliers were identified as the only source of quality ingredients and as a basis for guaranteeing a technological advantage and premium taste. After a decade, what began as a small-scale, self-funded start-up remains an independent and fiercely competitive player that continues to operate according to its founding philosophies. Titan still adheres strictly to its artisan heritage, which the owner and founder personally

leads, supervises and controls – one of the crucial measures of a true artisanal product. The company has since expanded, gradually gaining a greater share of the local whey protein market, with additional products introduced to the range, all produced using top quality, modern ingredients. Titan True Whey, a 100% pure, top quality micro-filtered whey protein, is the brand's flagship product. Offering an exceptional taste, with no intestinal discomfort, bloating or gas, it's the enduring favourite of everyone who tries it. Titan Nutrition will now be increasing their presence in all major centres throughout South Africa in 2017. **For more info, visit www.titanworld.co.za**



EVOX BRAND RE-LAUNCHED

Evov, a well-recognised South African sports nutrition brand, has embarked on its brand revamp and re-launch. With an increased interest in international distribution and a growing footprint of clientele, Evov has begun an evolution to become a viable international competitor and major player in off-shore supplement markets. And it's not just about a new logo and new packaging, says Katherine Mouton, Marketing Manager for Ascendis Sports Nutrition. "We've taken the opportunity to better define our product categories, and the science team has reformulated and improved on many of the existing products we offer. We also have an exciting innovation pipeline of new products launching soon." **For more info, visit www.evov.co.za or follow EvovAdvancedNutrition on Facebook and @evovnutrition on Instagram.**

SUPPLEMENTS

POWER YOUR PERFORMANCE

EVOX LAUNCHES NEW ALPHA SERIES

Evov, a leading South African brand with a reach that now extends across Africa and Australia, is leading their innovation drive with the launch of a new product category.

The Alpha Series is dedicated to bodybuilders, fitness enthusiasts and strength and power athletes. This highly innovative, maximum-strength offering draws on the most up-to-date science, leveraging on industry relationships with the most prestigious global partners, and uses the most advanced manufacturing technology available. The initial launch

offering covers all the vital elements of the peri-workout phase, with:

- Alpha Pre-Surge Extreme
- Alpha Resurgence BCAA 3:1:1
- Alpha Overhaul Recover
- Alpha Thermo Shred Powder

For more info, visit www.evov.co.za



3D NUTRITION LAUNCHED IN SA

3D Nutrition is a new local supplement brand that launched in late January 2017 offering a comprehensive range

of products and flavours, and a complete range of accessories. The 3D Nutrition brand has been developed to tackle the 3 dimensions of supplementation, which its creators deem to be the pillars of a solid fitness brand. These include superior quality, revolutionary innovation and cutting-edge science. The creators of the brand have signed a 5 year sole distribution agreement with Chrome Supplements & Accessories, which comprises 20 retail stores, an online store in South Africa and the UK, as well as a wholesale division which supplies over 400 independently-owned supplement stores, pharmacies and gyms across Africa.



BE A GYM HERO

Every athlete, fitness fanatic and weekend warrior knows preparation is key to success. The PerfectShaker shaker cup is the ideal fitness accessory to hydrate, fuel and inspire you to become your best. Every shaker bottle is 100% leak-free and BPA-free, and comes equipped with a stay-open flip cap, screw-on lid and extra-wide mouthpiece for easier consumption. Completely dishwasher safe, it's also the only shaker with ActionRod Technology, with the agitator bouncing up and down to create delicious and nutritious mixes. So get out there and train like a hero with PerfectShaker. **Available at Dis-Chem stores.**



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It is important to unwind and quiet the mind, which can be done with meditation or yoga, or some light exercise, particularly cardiovascular exercise.

5 HEALTH HACKS

HOW TO INSTANTLY IMPROVE YOUR HEALTH

MOST ADVICE ABOUT IMPROVING YOUR HEALTH CENTRES AROUND MAKING MEANINGFUL AND SUSTAINABLE CHANGES TO YOUR DAILY HABITS OVER THE LONG TERM.

However, there are a few hacks you can use to improve your health almost immediately, with certain of these benefits evident within just 24 hours, while others may take a few weeks to come to fruition. Either way, by following this advice you can be a healthier version of yourself by the time the next issue of fitness His Edition hits the shelves...

» By Pedro van Gaalen, Editor

■ GO COLD TURKEY ON SUGAR

Let's put aside the debate around the purported health benefits of the low-carb, high-fat diet, at least for a moment, and focus instead on the one unequivocal point that anyone who understands health and the human body can agree on – the damaging effects of sugar.

Added and processed sugar has been dubbed the heroin of the food world and for good reason. First and foremost, sugar is highly addictive and it also does immense damage to your body, with excessive sugar intake linked to serious health conditions such as chronic systemic inflammation, hormonal imbalances, metabolic syndrome, various cancers, numerous cognitive diseases including Alzheimer's disease, high cholesterol and fatty liver disease, and just about every other lifestyle-related disease that plagues man today.

In his new book, *The Case Against Sugar*, author, science journalist and proponent of low-carb eating Gary Taubes asserts that sugar is toxic to the body, placing the substance in the same league as other harmful vices such as cigarettes or alcohol. And it's worth taking notice of the growing outcry against sugar, because it is not only making you fat and unhealthy, it is slowly killing you.

Thankfully it seems that the negative effects of sugar

abuse can be reversed and that a significant effect can be experienced almost immediately. For instance, a study conducted at the University of Michigan found "improvements in evening postprandial high blood glucose, and compensatory insulin response" (albeit in post-menopausal women) after just three low-carbohydrate meals over a 24-hour period, compared with those who ate the recommended higher-carb meals.

In another study, conducted to show the effects that cutting sugar from a child's diet would have, a team of researchers from the University of California, San Francisco, led by Dr. Robert Lustig, found that after just 10 days the children

who participated in the study dramatically reduced their risk of developing type 2 diabetes, while their triglyceride and 'bad' LDL cholesterol levels decreased (by an average of 33 and 5 points on average, respectively). Their diastolic blood pressure also decreased, which is an indicator that cardiovascular health, particularly the elasticity of blood vessels, improved.

The same effect was witnessed in adults in a study conducted by James J. DiNicolantonio, PharmD, a cardiovascular research scientist at St. Luke's Mid-Atlantic Heart Institute in Kansas City, although it took a bit longer. After a few weeks, participants saw a 10% decrease in their LDL cholesterol and a 20 to 30% decrease in triglyceride levels.

Other short-term benefits reported by people who quit sugar include better sleep and more stable energy throughout the day, enhanced cognitive function and a lifting of 'brain fog', and better skin health. Once the sugar withdrawal subsides, you should also experience fewer cravings and will start to regain a sharpness in your taste buds that an overconsumption of sugar usually blunts.

When it comes to sugar, not even the old mantra of "everything in moderation" should be entertained. There is no doubts that this substance is a silent killer and must be treated with all the contempt that should accompany such a distinction. You need to cut added sugar from your diet immediately. To do so, stop adding sugar to your meals or during the cooking process, cut out all sugar-sweetened beverages, and read food labels to determine how much sugar is in the packaged and manufactured foods you buy, then buy options with lower sugar contents.



A study published in the American Journal of Clinical Nutrition found that when non-soda-drinkers consumed a 355ml can of a sugar-laden soda a day for three weeks, their INFLAMMATION LEVELS INCREASED BY 87%.

■ GET A GOOD NIGHT'S SLEEP

Inadequate sleep has been directly linked to host of health-related issues, including weight gain, insulin resistance, elevated cortisol levels (which breaks down muscle, increases fat storage, hardens arteries causing hypertension, accelerates bone loss and can also cause depression), a decrease in leptin levels which stifles various metabolic processes and increases food cravings (which increases total calorie intake), and blunts our immune response.

Despite the multitude of evidence, a growing number of people do not get the minimum amount of sleep a night needed for optimal health. In fact, one of the largest consumer sleep studies ever conducted, which reviewed data from 1.5 million nights of sleep, showed that 79% of people in the U.S. get less than the minimum recommendation of seven hours of sleep a night. The astonishing

findings of the study, which was conducted by SleepScore Labs, were released recently at CES 2017 and paints a troubling picture of the state of human health, especially among U.S. men as they averaged just 5 hours and 45 minutes of sleep a night.

However, the study also shined light on steps that we can take to get more beneficial shut-eye. For instance, just 30 minutes of exercise correlated with 14 extra minutes of sleep per night. Increasing your exposure to sunlight during the day and reducing exposure to blue light from screens at night also helps people to fall asleep faster, as does reducing your sugar intake (see point 1).

Naps are also a beneficial (and immediate) way to help mitigate the effects of cumulative sleep debt. A small study led by Brice Faraut of the Universite Paris Descartes-Sorbonne Paris Cite in France, and published in the

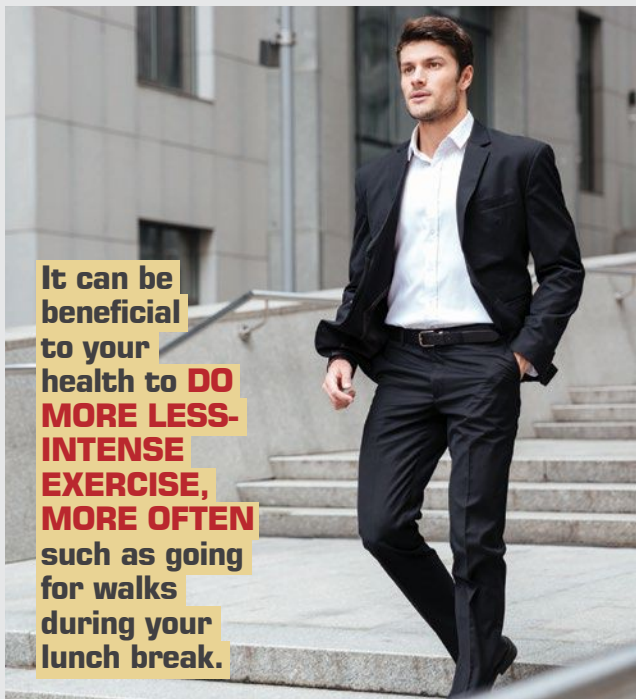
Researchers from the University of Bonn in Germany, who imaged the hearts of radiologists before and after a 24-hour shift that included only about three hours of sleep, showed that SEVERE SLEEP DEPRIVATION RESULTED IN SIGNIFICANT HEART STRAIN.

Journal of Clinical Endocrinology & Metabolism, determined that a 30-minute day-time nap was able to restore hormonal function and raise levels of proteins involved in stress management and immune system function back to normal following two nights of severe sleep

deprivation. "Our data suggests a 30-minute nap can reverse the hormonal impact of a night of poor sleep," commented Faraut. This was the first study that found that napping could restore "biomarkers of neuroendocrine and immune health to normal levels," he added.



Just ONE HOUR OF LOST SLEEP can reduce day-time productivity by 25%.



It can be beneficial to your health to DO MORE LESS-INTENSE EXERCISE, MORE OFTEN such as going for walks during your lunch break.

■ MOVE MORE

In November 2016 the American Journal of Human Biology published the findings of a study conducted by Daniel Lieberman, a biological anthropologist at Harvard University, which researched the daily activity and exercise habits of the Hadza people of Tanzania in East Africa, who are one of the last remaining hunter-gatherer societies on the planet.

Lieberman and his team found that the Hadza's subsistence lifestyle, which requires that the men hunt for fresh meat and that the women gather plant-based food sources, were active for an average of 75 minutes per day, engaging in what scientists classify as moderate-to-vigorous physical activity. This volume and intensity of daily 'exercise' was positively correlated with a reduced risk of cardiovascular

disease observed in the Hadza people as they had exceptionally low levels of hypertension.

There was very little high-intensity activity witnessed by the researchers, but the cumulative activity amounted to 14 times as much as the U.S. Department of Health and Human Services's guidelines, which recommend 150 minutes per week of moderate-intensity physical activity (about 30 minutes a day, five times a week) or 75 minutes per week of vigorous-intensity physical activity.

As such, it can be beneficial to your health to do more less-intense exercise, more often. This could include going for walks during your lunch break, taking the stairs instead of the lift, or parking at the far end of the parking lot when you go shopping, as examples.



RATE YOUR TOTAL, CUMULATIVE STRESS TO DETERMINE WHETHER OR NOT YOU SHOULD HEAD OUT FOR A HARD TRAINING SESSION, or if you need to consider more aggressive ways of managing skyrocketing stress levels.

training session, or if you need to consider more aggressive ways of managing skyrocketing stress levels.

Ideal ways to manage stress is to find outlets to process it, as well as activities that can help your body manage the impact thereof. In terms of processing stress, it is helpful to develop coping mechanisms to deal with and manage daily life and work-related stressors, because these are inevitable.

It is also important to unwind and quiet the mind, which can be done with meditation or yoga, or some light exercise, particularly cardiovascular exercise. In severe cases it is also helpful to speak to a professional who can offer advice and practical solutions for dealing with your stress. A healthful diet devoid of (yes, you guessed it) sugar and processed foods, adequate sleep, and the limited consumption of stimulants and alcohol are also important elements of a TSS management plan.

■ APPLY TSS TO YOUR LIFE

Our body's response to stress is the same, whether it's work stress, emotional stress, physical trauma, environmental stress, exercise stress or psychological stress. While some degree of acute stress is beneficial as it provides the stimulus for adaptation, when we overload our system with multiple forms of stress over prolonged periods of time, something will eventually give, and that's normally our health. Accordingly, burning the candle at both ends, figuratively

speaking, will have serious implications, yet this is becoming more prevalent in modern society.

Leaving your stress unchecked can lead to hypertension, a chronically elevated heart rate, irritability, anxiety, depression, indigestion and heart burn, insomnia, erectile dysfunction, a suppressed immune system and hormonal imbalances, to name just a few.

To achieve and maintain optimal health and wellness we therefore need to manage stress and find

ways to deal with it, in all its forms. Many athletes already use the highly effective TrainingPeaks Training Stress Score® (TSS) to monitor the cumulative effects of training on the body and to help them peak for competitions. However, it is worth using this highly effective tool as the basis for tracking your total stress score (which is also a TSS acronym). This would mean rating your total, cumulative stress to determine whether or not you should, for instance, head out for a hard

■ CHANGE YOUR EATING HABITS

Research shows that intermittent fasting (IF) helps fight obesity and type 2 diabetes, both of which are risk factors for high blood pressure, by positively impacting on powerful hormones such as insulin and leptin. After a period of fasting, even as short as eight hours, our body becomes more sensitive to these hormones, offering an immediate health benefit.

Supporters of IF also propose that cutting calories can reduce levels of another powerful hormone called insulin-like growth factor-1 (IGF-1), a reduction of which seems to protect us against cancer, heart disease and other serious illnesses by turning on cellular repair mechanisms, according to available research. Also,

when IGF-1 levels are reduced it allows your body to burn body fat at a higher rate and regulates blood sugar to normal levels.

In addition, a review of IF diets by Dr Joseph Mercola evaluated the various approaches to this way of eating, particularly the advantages and limitations for its use in fighting obesity and type-2 diabetes. The research found that overweight or obese individuals with type-2 diabetes who fasted on consecutive or alternate days lost more weight, while also

experiencing enhanced heart health and cardio-protective benefits. Studies included in the review showed a broad range of therapeutic potential, even when total calorie intake per day did not change or was only slightly reduced.

Overweight or obese individuals with type-2 diabetes who fasted on consecutive or alternate days LOST MORE WEIGHT, while also experiencing ENHANCED HEART HEALTH AND CARDIO-PROTECTIVE BENEFITS.

Intermittent fasting can benefit your body in the following ways:

- **Increases insulin sensitivity and mitochondrial energy efficiency:** This retards the ageing process and prevents the onset of various lifestyle diseases typically associated with a loss of insulin sensitivity and a decline in mitochondrial energy.
- **Reduces oxidative stress:** Fasting decreases the accumulation of oxidative free radicals in the cell, thereby preventing oxidative damage to the cellular proteins, lipids and nucleic acids associated with ageing and disease.
- **Increases capacity to resist stress, disease and ageing:** Fasting induces a cellular stress response similar to that caused by exercising, in which cells up-regulate the expression of genes that increase the capacity to cope with stress and resist disease and ageing. ■

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Caribbean Tan Professional Self Tan and Tan Care Range is an innovative concept in the application of sunless tanning. Their state of the art delivery system virtually eliminates all problems associated with sunless tanning creams. No more streaky mess, orange palms, or dirty knees and elbows! Prize valued at R1,500.



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POWER UP WITH POTATOES

In addition to the glycogen they produce, which helps to fuel intense exercise, potatoes are also rich in the mineral chromium and boast a potassium content higher than that of bananas. Potassium is an electrolyte that is important

to balance hydration status and reduce the risk of cramping. This is yet another way in which the potato can benefit athletes, especially those who participate in endurance sports. Registered dietitian Claire Julsing Strydom affirms the

importance of getting more of the natural nutrients found in potatoes and suggests that athletes consider potatoes as an essential part of their high-performance diet, rather than merely another starch that contributes to weight gain.

FUEL UP

EAT CLEAN, LIVE HEALTHY

#ONTREND FOODS

The types of foods that are trending globally and are set to have a big impact on 2017 shopping, food prep and healthy eating habits include:

■ **INSECT PROTEIN:** It's the new buzzword in sustainable eating, plus it packs a surprising amount of protein per 100g – upwards of 55g! (read more in our insect protein feature on page 78)



■ **WATERMELON AND CACTUS WATER:** Move over coconut water (which was never very healthy to begin with), there are a few new superfood drinks in town. Watermelon water is packed full of vitamins A, B6 and C, lots of lycopene, antioxidants and amino acids, while cactus water is high in fibre and low in calories and can apparently cure hangovers.



■ **BUCKWHEAT NOODLES:** Buckwheat noodles don't actually contain wheat, making it another winner in the 'free-from' functional food category as it is ideal for those with IBS and celiac disease.



■ **TIGER NUT FLOUR:** This ingredient promises to be a 'free-from' category killer as it is a gluten-free, grain-free flour that is high in fibre and contains calcium, iron, magnesium and potassium.



■ **COCONUT SUGAR:** Coconut sugar is an ideal natural alternative to processed sugar. It is packed with vitamins and minerals, including iron and zinc.



■ **BLUE CORN:** A new study by researchers in Mexico and carried out in rats suggests that the natural antioxidants present in blue maize may help protect against metabolic syndrome, cardiovascular disease, diabetes and cancer, raising interest in using blue maize as a component of functional foods and nutraceuticals.



■ **PURPLE IS THE NEW BLACK:** Purple kale, purple carrots, purple cauliflower, purple broccoli and purple potatoes are all rich in the antioxidant anthocyanin, which makes these foods a big hit among health foodies. These ingredients also make dishes look great.



5 MINUTES

The time it takes to determine how healthy your diet is when using a urine test developed by researchers from Imperial College London, Newcastle University and Aberystwyth University.



The test measures biological markers in urine created by the breakdown of foods such as red meat, chicken, fish and fruit and vegetables. It also gives an indication of how much fat, sugar, fibre and protein a person has eaten.

CERTAIN SUGARS WORSE THAN OTHERS

A new study published in the *American Journal of Physiology -- Heart and Circulatory Physiology*, compared the effects of two types of sugar on metabolic and vascular function. The researchers gave female rats a liquid solution of either glucose or fructose in addition to their normal diet for eight weeks. They found that both sugar-fed groups consumed more calories than the control group (which only received water), but that the total calorie intake of the glucose-



fed group was higher than the fructose group. In addition, "only the fructose group exhibited a significant increase in final body weight," wrote the research team. The fructose group also showed more markers of vascular disease and liver damage than the glucose group. The researchers concluded that the amount of calories consumed due to sugar intake is not the only factor involved in long-term health risks, as the type of sugar consumed may also play a role in increasing health risk factors.

5 REASONS TO EAT MORE GARLIC

■ PREVENTS CANCER:

According to the National Cancer Institute, garlic's protective effects are due to its antibacterial properties and ability to block the formation and activation of cancer-causing substances.



■ **BEAT COLDS & FLU:** A study published in the journal *Advances In Therapy* found a daily garlic intake can reduce the number of colds by 63%! Plus, the average length of cold symptoms in the study were reduced by 70%, from five days to 1.5 days in the garlic supplement group. Garlic can also get rid of worms and parasites in the system.

■ LOWERS BLOOD PRESSURE:

Garlic's active compounds can significantly reduce blood pressure, comparable to the effects of prescribed drugs, according to a study published in the *Pakistan Journal of Pharmaceutical Sciences*.

■ PREVENTS HEART DISEASE:

Having garlic daily – either raw or in your food – helps lower cholesterol thanks to the effects of allicin, an antioxidant contained in garlic.

■ **BOOST BONE HEALTH:** Risa Groux, a holistic nutritionist, explains that garlic is high in manganese, which contains enzymes and antioxidants that facilitates the formation of bones and connective tissues, bone metabolism and calcium absorption.

All this garlic may leave your breath a little pungent, but fear not! Garlicit odour-fighting capsules are now available in South Africa. The capsules contain parsley seed oil, green tea extract, chia seed oil and peppermint oil, which all help to combat bad breath. Available at Pick 'n Pay Pharmacies nationwide and select independent pharmacies. (30 capsules at RRP R98,95)

2017'S TOP NUTRITION TRENDS

According to a report titled: *10 Key Trends in Food, Nutrition and Health 2017*, the key nutrition and food-related trends for the year ahead are:

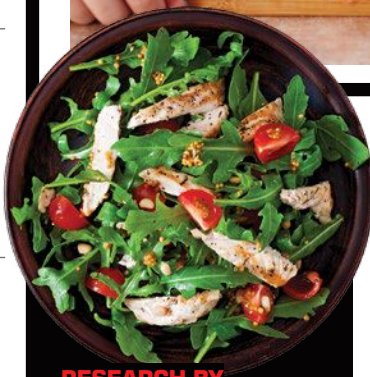
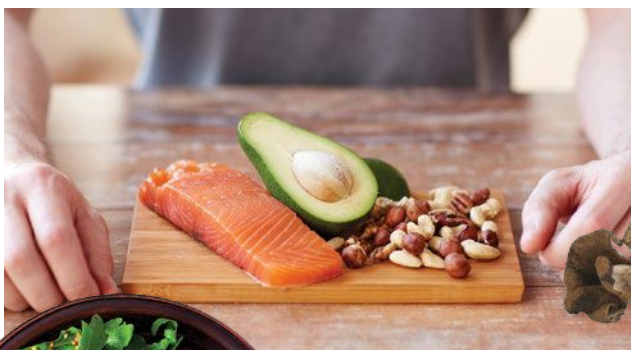
■ PERSONALISED NUTRITION SERVICES,

which include tests for biomarkers for chronic inflammation.

■ **SPORTIFICATION**, where sports nutrition goes mainstream as foods designed for elite athletes become regular options for the average individual.

■ DIGESTIVE WELLNESS,

where greater focus is placed on foods, cooking practices and supplemental products that improve gut health. This includes the growing 'free-from' trend as consumers look to the avoidance of specific ingredients to ensure they feel better.



RESEARCH BY SKIDMORE COLLEGE EXERCISE SCIENTIST PAUL ARCIERO HAS FOUND THAT A BALANCED, PROTEIN-PACING, LOW-CALORIE DIET THAT INCLUDES INTERMITTENT FASTING IS ABLE TO ACHIEVE LONG-TERM WEIGHT LOSS, WHILE ALSO HELPING TO DETOX THE BODY OF PCB'S STORED IN BODY FAT, IN ADDITION TO ENHANCING HEART HEALTH AND REDUCING OXIDATIVE STRESS.



SHROOMACINO

Mushroom coffee (yes, you read that right) is being touted as the next superfood drink, at least according to Four Sigmatic, a Finnish company that produces it. The company produces concentrated extract powders by isolating and spray drying the different key health-promoting constituents found in wild-harvested mushrooms. They then infuse products like coffee, elixirs, blends, and hot cocoa mixes with the fungi-based goodness.

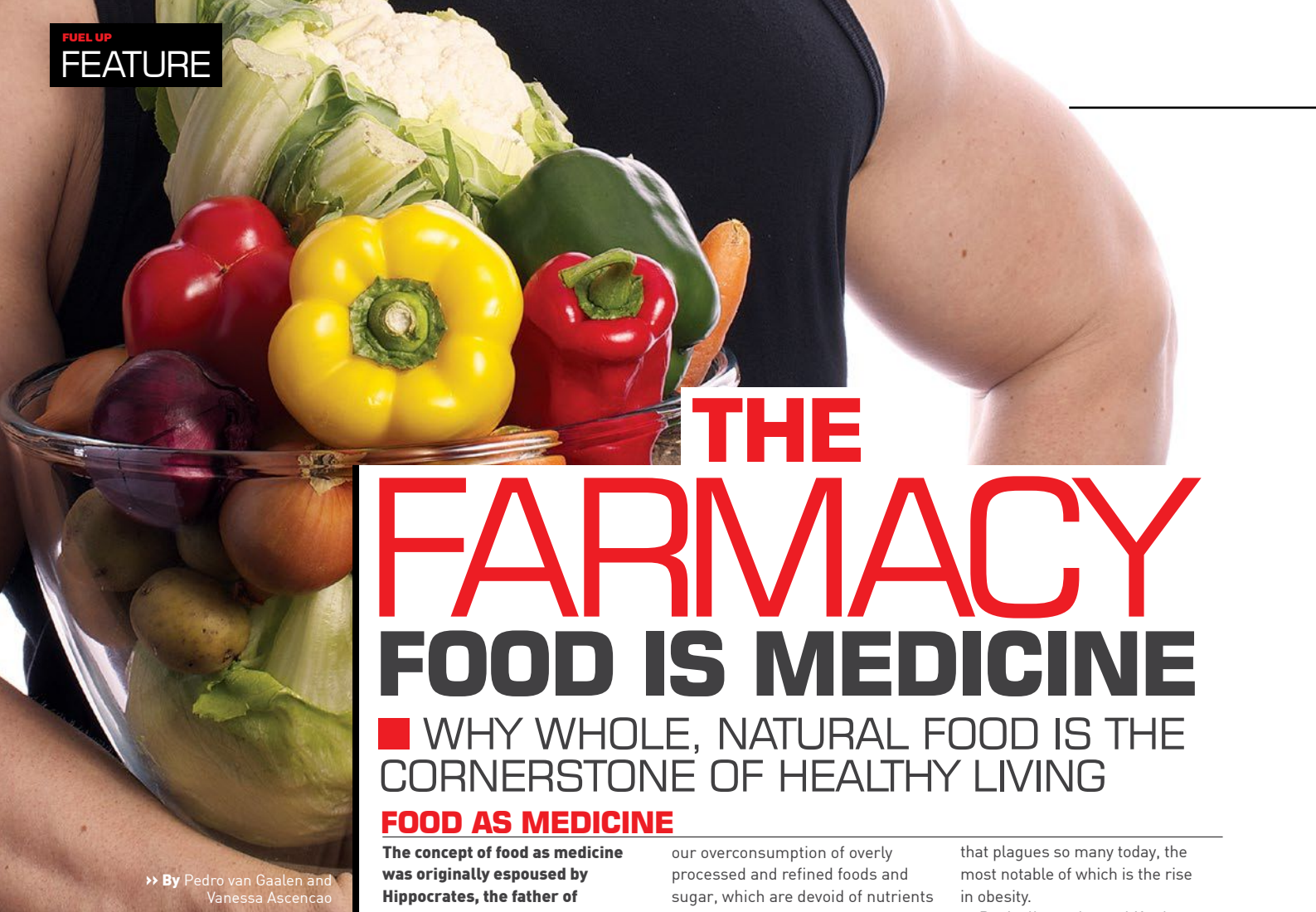


GO GLUTEN-FREE WITH JAGER BREWERY

The free-from diet trend is predicted to remain a key driver of the health and functional foods market as more health-conscious individuals choose to limit their intake of ingredients that could potentially impact their health and well-being. Unfortunately for beer lovers, traditionally brewed beers made using wheat and barley contain high levels of the common food allergen gluten, which can trigger an autoimmune response in Celiac disease sufferers and those with dermatitis herpetiformis. Thankfully, those with a natural intolerance to gluten, or those who've chosen to alter their diet to exclude this substance now have access to a growing number of great-tasting gluten-free beers. According to both European and South African legislation, beer is considered 'gluten-free' when there is less than 20mg/kg of gluten in the final product. Jager Brewery, a family business operating from Frankfort in the Free State, has significantly increased the availability of these products by importing unique



gluten-free beers from the Baltic States in Europe. Founded in 2015, Jager Brewery imports the Volfas Engelmann beer range, which includes Pilseno Pilsner and Rinkinis Lager, and Sprintase Lager. All the beers in the Jager Brewery range are certified gluten-free as a special type of barley malt grown in Northern Europe is used by the breweries to brew the beer, in a process that leverages their long history and experience and rich heritage. **To learn more about these gluten-free beers, visit jagerbrewerysa.co.za**



THE FARMACY FOOD IS MEDICINE

■ WHY WHOLE, NATURAL FOOD IS THE CORNERSTONE OF HEALTHY LIVING

FOOD AS MEDICINE

The concept of food as medicine was originally espoused by Hippocrates, the father of Western medicine, who famously said: "Leave your drugs in the chemist's pot if you can heal the patient with food" and "Let medicine be thy food and let food be thy medicine." It was his belief that eating wholesome food was the basis for good health.

Paradoxically, though, one of the major reasons we get sick today is also caused by our diets. The problem lies in

our overconsumption of overly processed and refined foods and sugar, which are devoid of nutrients and are full of artificial colourants, additives, flavourants, synthetic compounds and chemically-altered fats and sweeteners.

This has led to the high prevalence of nutritional deficiencies and high rates of free radical damage.

These foods also have deleterious effects on our hormonal system and organs, which has given rise to the global lifestyle disease pandemic

that plagues so many today, the most notable of which is the rise in obesity.

Basically, we have shifted away from the simplicity of nature and have completely changed and altered the food we have been designed to digest, assimilate and absorb and this is causing us to become sick. Therefore, perhaps more than anything else in our lives, the foods we regularly eat will determine whether or not we become ill, or remain healthy into older age.

NOURISHING YOUR BODY

"The cornerstone of preventative medicine is eating a nutrient-dense diet" explains Rachel Jesson, co-author of the book *Wholesome Nutrition For You* (Struik Lifestyle, 2016). "This is because natural foods, be they vegetables, fruit, organ meat and dairy, contain beneficial substances such as phytonutrients, vitamins, minerals, fatty acids, fibre, antioxidants and more. Your body recognises these substances and knows how to process and assimilate them to nourish the body," she continues.

However, Jesson, who is a health food specialist and sports scientist, adds that even when you follow a diet composed predominantly of whole, natural foods, modern agricultural and food distribution practices, and compromised soil quality lower the nutritional content of food, thereby degrading its quality.

"Even much of the organic farming done today doesn't offer the same nutritional value it did previously due to the large scale on which it is done," adds Jesson. "And when you shop at any one of the many organic markets that are

popping up across the country, you should also ask when the food was picked and how far it had to travel to get there, to determine if it has retained enough of its nutritional value."

In this regard, Jesson suggests that you use your instinct when buying 'fresh' food. "The freshest, best quality foods will taste better – it'll generally taste richer and/or sweeter." And that, she says, is the basis for selecting the best options for your plate. "Always aim to eat the best quality food that you can, as often as you can. It won't always be possible, though."

WHEN IT COMES TO OUR HEALTH, WE HAVE TWO BROAD APPROACHES THAT CAN BE USED TO MAINTAIN IT OR REGAIN IT, SHOULD WE FALL ILL. THE PREVAILING TREND – THE ONE WITHIN WHICH PHARMACEUTICAL-DRIVEN MODERN MEDICINE HAS BECOME ENTRENCHED – IS THAT OF CURATIVE MEDICINE.

The other is preventative medicine and, as the popular idiom from Dutch Renaissance theologian Desiderius Erasmus states, prevention is better than cure. According to this approach, it is our diet that should sit at the heart of our quest for optimal health and enhanced resilience against disease, with exercise alongside to fortify our efforts, and supplementation a little further back as auxiliary support.

» By Pedro van Gaalen and Vanessa Ascencao

"ANYTHING THAT YOU CAN PICK STRAIGHT FROM YOUR GARDEN AND PUT DIRECTLY ONTO YOUR PLATE WILL BE THE FRESHEST FORM OF FOOD YOU CAN EAT."

GET GREEN THUMBS

However, she asserts that there are ways to increase our intake of the nutrients and other beneficial compounds that will boost our health, adding that people have become too focused on the macronutrient ratios of their diet, which is a common trend in fad dieting. "Much of the debate on diets today focuses on the amount of carbs and fats we eat. In all honesty, we don't need too much energetic food in our diet, but we definitely need to ensure we're getting the right amount of micronutrients," affirms Jesson.

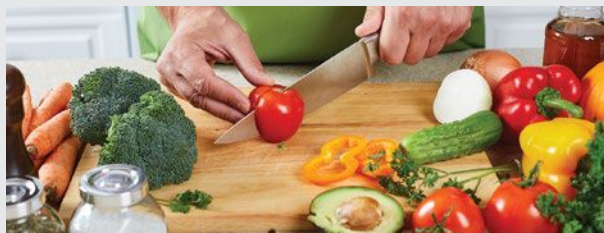
Her first suggestion in this regard is growing veggies at home. "Anything that you can pick straight from your garden and put directly onto your plate will be the freshest form of food you can eat. It will also have the highest nutrient density as there is no time for it to degrade."

And there is no coincidence in the fact that veggies are often the easiest and quickest to grow. "A healthful diet should consist mainly of vegetables, with smaller amounts of fruit and protein," says Jesson.



With the right selection of seeds and a few pre-sprouting techniques, you can have a small- to medium-size organic garden at home full of things like tomatoes (a fruit), carrots, pumpkins, and loads and loads of leafy greens, often within a few weeks. Fruit trees, on the other hand, can take years to grow, germinate and flower.

If you don't have the space or know-how to plant your own garden, Jesson suggests that you don't compromise on the quality of the food you buy. "Spend the extra money on food. In the long run you'll likely save on the amount of money you'd spend on medical and doctors bills and chronic medicine, if you invest now in proper nutrition."



"DON'T COMPROMISE ON THE QUALITY OF THE FOOD YOU BUY. IN THE LONG RUN YOU'LL LIKELY SAVE ON THE AMOUNT OF MONEY YOU'D SPEND ON MEDICAL AND DOCTORS BILLS AND CHRONIC MEDICINE, IF YOU INVEST NOW IN PROPER NUTRITION."

A HOST OF ISSUES

The other important aspects that Jesson suggests we consider include the critical role that the food we eat plays in controlling inflammation levels, balancing blood sugar, regulating cardiovascular health (including blood pressure and cholesterol levels), and the ability of our digestive system to process and eliminate waste.

"For many of us, our bodies are in a state of chronic systemic inflammation due to toxins, stress, poor diets, and an overly acidic environment caused by alcohol, smoking and an overconsumption of acidic foods," elaborates Jesson. "We therefore need to eat more foods that combat inflammation because when this delicate balance swings out of control, we experience numerous problems."

This is because inflammation is the root of most diseases and is a major contributor to the effects of ageing. "Inflammation is an immune response. It is a natural process and some degree of it is beneficial and necessary, but this is normally acute and localised. However, when it becomes chronic and systemic it can affect nearly every tissue, hormone and cell in the body. That is when we start to experience many health issues, including various forms of auto-immune disease, cardiovascular disease and irritable bowel syndrome (IBS), to name a few."

Diabetes and weight gain are also caused by poor diets and are tied to a poor insulin response and other hormonal changes that are brought about by an overconsumption of sugar and carbohydrates, particularly processed carbs. "One of the most important roles of your diet is to balance blood sugar," says Jesson.

"This is best achieved by mixing foods to manage the glycaemic load (GL) of the meals you eat."

Abnormal hormonal profiles brought about by poor diets and the ingestion of compounds known to be hormone disruptors, such as pesticides and chemicals like BPA, contribute to maladies such as fatigue, depression, low mental capacity, reproductive problems, hypothyroidism and an array of autoimmune diseases. Toxicity is also tied to poor digestive health and a decrease in liver function, which reduces the body's ability to self-regulate its important detoxification processes.

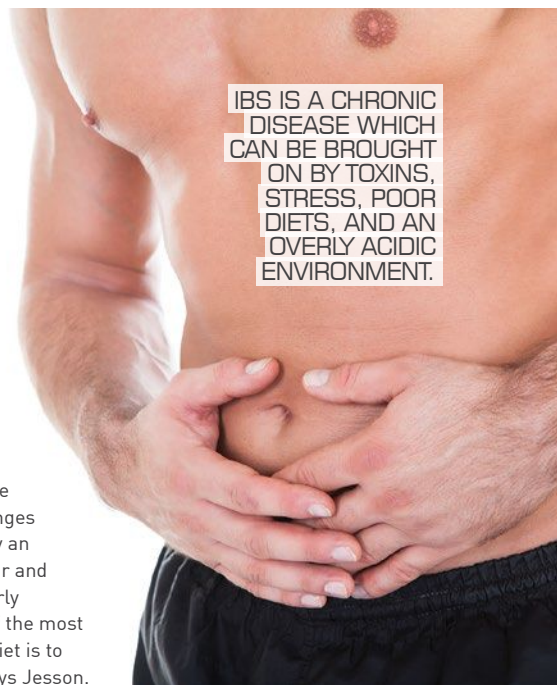
The active ingredients found in the food we eat can also influence

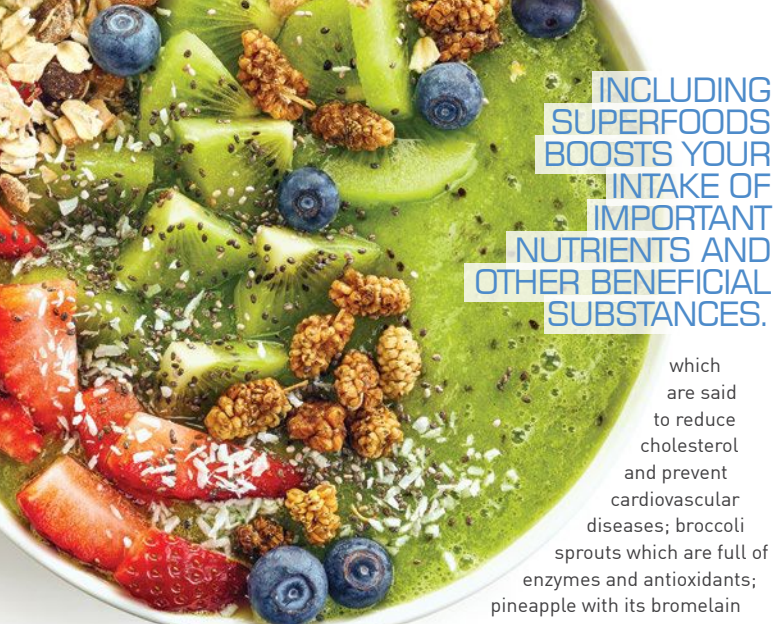
gene expression and therefore contributes to either health and longevity or to disease and premature death as genes play a role in disease development and prevention. A nutrient-deficient diet that is

laden with toxic chemicals and substances (including sugar) negatively affects the process of gene expression.

"THE FOOD WE EAT PLAYS A ROLE IN CONTROLLING INFLAMMATION LEVELS, BALANCING BLOOD SUGAR, REGULATING CARDIOVASCULAR HEALTH (INCLUDING BLOOD PRESSURE AND CHOLESTEROL LEVELS)"

IBS IS A CHRONIC DISEASE WHICH CAN BE BROUGHT ON BY TOXINS, STRESS, POOR DIETS, AND AN OVERLY ACIDIC ENVIRONMENT.





INCLUDING
SUPERFOODS
BOOSTS YOUR
INTAKE OF
IMPORTANT
NUTRIENTS AND
OTHER BENEFICIAL
SUBSTANCES.

A NATURAL BOOST

Once you have your basic diet 'cleaned' up, Jesson suggests that you boost your intake of important nutrients and other beneficial substances. "A great way to do this is to add in superfoods, which pack a concentrated dose of various vitamins, minerals, phytonutrients and/or antioxidants."

The reasons for this are manifold. First and foremost, it makes up for any nutritional deficiencies or shortfalls that may be present in your diet, and this approach also helps to support numerous important bodily functions. "For example, anything that requires buffering, such as managing stress (in all its forms), detoxing, or various mental processes, all require micronutrients," explains Jesson.

These nutrient-dense foods include the likes of açai berries,

which are said to reduce cholesterol and prevent cardiovascular diseases; broccoli sprouts which are full of enzymes and antioxidants;

pineapple with its bromelain content, an enzyme found in the fruit's stem that aids digestion and prevents clotting, promotes nutrient absorption and combats inflammation; chia seeds with their high fibre and essential fatty acid content, which have been shown to help regulate blood sugar and aid in the prevention of cancer; garlic with its antibacterial, antiviral, anti-parasitic and anti-fungal properties; ginger, which can help to alleviate indigestion and reduce inflammation; and turmeric, which contains potent antioxidants and has anti-inflammatory properties.

Furthermore, including more fermented foods in your diet also helps to prevent illness by repopulating the gut and colon with what Jesson calls 'healthy bugs'. "These are good bacteria that are often killed off due to excessive sugar consumption or antibiotic use. And the gut – specifically the microbiome it houses – is the first line of defense against many diseases and infections."

SUPPLEMENT YOUR EFFORTS

But why not just take an off-the-shelf probiotic, supplement or multivitamin and mineral complex? Wouldn't you be getting the same benefit? "There are certainly benefits to supporting a healthy diet with supplements as most people aren't consuming what they need to, in which case they could use a boost. However, modern society has become overly reliant on these products and not all supplements are beneficial or effective."

Jesson's approach is one of food first, with the aid of superfoods, supported with supplements to compensate for any shortfall. "Supplement use should be strategic rather than a shotgun approach to ensure it's delivering benefits, and I always prefer to use products that are concentrated extracts of natural foods rather than synthesized compounds," she adds.

Examples include camu camu and baobab powders, which offer high concentrations of vitamin C that can help boost immunity, and blue-green algae extract in the form spirulina, which can help reduce fatigue and that lab studies show has antiviral properties. Dandelion extract is another example as it is rich in vitamins and minerals and has antimicrobial properties, while maca powder,

which is derived from a herb native to the Andes Mountains, is rich in amino acids, phytonutrients, fatty acids, vitamins and minerals.

As an example, Jesson explains that she would dose up on a good probiotic – one that has a variety of strains and a high bacteria count (in excess of 30 billion CFUs per serving) – ahead of say a party or an overindulgence as the digestive system could use some extra support in these situations. "There are also more specific clinical approaches to supplement use in the treatment of various ailments, which can be determined in consultation with a nutritional therapist," she explains.



"MODERN SOCIETY HAS BECOME OVERLY RELIANT ON THESE PRODUCTS AND NOT ALL SUPPLEMENTS ARE BENEFICIAL OR EFFECTIVE."

CURING ILLNESS

However, optimal nutrition is not only capable of preventing ill health, but can also help in the management, treatment and even reversal of various chronic illnesses. Jesson says she also turns to food first when she or someone in her family gets sick.

"Foods also have powerful curative properties, with the ability to help manage acute conditions such as dehydration, infections and viruses, as well as chronic conditions such as diabetes and IBS," she explains.

JESSON SHARES THE FOLLOWING TIPS TO HELP CURE COMMON CONDITIONS:

DIABETES: Use cinnamon to regulate blood sugar, which helps to improve insulin sensitivity.

COLDS: Drink a tea made with chopped ginger, fresh lemon, hot water and a dollop of raw honey (find honey from local sources)

COUGHS: Chopped onion, filtered water and honey. Let it stew.

IBS: Add kefir to any smoothie. A home-made chicken soup that is brothy and stocky nourishes the gut with the co-factors needed to repair the gut lining.

DIARRHOEA: Psyllium husk or stewed apple with cinnamon and pectin.

INDIGESTION: Lemon juice shot, a rocket and parmesan starter, or an apple cider vinegar shot before meals to boost stomach acidity.

DEHYDRATION: Squeeze a lemon into distilled or reverse osmosis water. Add Himalayan rock salt to water for an electrolyte solution.



Get Rachel's book from
www.exclusivebooks.co.za



TIPS

GET MORE OF THESE IN YOUR DIET:

Eat whole, natural; simple, raw and minimally processed food as much as possible. Foods in their natural state contain more nutrients and active enzymes.

CHOOSE ORGANIC FOOD to avoid pesticides, herbicides, genetically modified (GMO) foods, and irradiated food. Fresh, organically-grown food has a greater nutrient density and tastes better. Similarly, organic meats and dairy don't contain hormones, antibiotics and other growth factors that affect our own body chemistry.

HYDRATE WITH PURIFIED WATER with added fresh lemon or lime and Himalayan rock salt.

EAT A VARIETY AND COLOURFUL SELECTION of some fruit and lots of vegetables.

USE FRESH HERBS AND NATURAL SPICES to flavour your food.

EAT FOOD IN SEASON to ensure more variety and nutrients in your diet.

DITCH LOW FAT AND FAT-FREE products.

CHOOSE ORGANIC, pasture-fed animal products and select fresh meats instead of cured, dried, preserved, or smoked meats.

DON'T EAT FOOD THAT WON'T ROT. Real food is alive, so it will eventually rot and die.

EAT AT LEAST SOME RAW FRUITS AND VEGETABLES. These have the highest amounts of vitamins and minerals. However, cooking some vegetables can make the vitamins more bioavailable, which makes it easier for our bodies to use.

WASH ALL FRUITS AND VEGETABLES. Use a vegetable brush for washing. It doesn't eliminate all pesticide residue, but it will reduce it.

WHAT TO AVOID:

- Sugar and artificial sweeteners.
- Table salt.
- Processed fats and hydrogenated oils.
- Chemicals and artificial food additives, flavourants and preservatives.



CONCLUSION

By simply getting "back to basics" in terms of our diets, Jesson believes we can prevent many of modern life's most common health issues. "Just aim to eat a variety of whole, natural foods, and minimise (or eliminate) your consumption of sugar-laden manufactured foodstuffs." It is also worth watching how much you eat. And, of course, try to get some form of physical activity in each day, even if it is just a walk." ■

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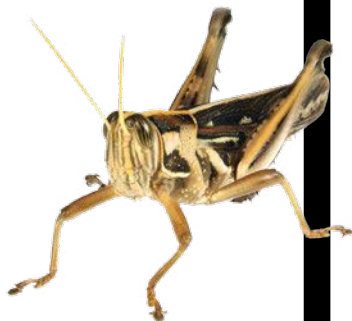
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BUGGING OUT ON PROTEIN

■ WHY INSECTS MAY BE THE NEXT BIG THING IN PROTEIN

» By Pedro van Gaalen



Locusts can offer up about 75% protein. In contrast, an identical serving of chicken will only yield 31 grams and dried beef only 43 grams of protein.

supplement landscape. Offering upward to 54g of protein per 100g serving, insect protein – yes, you read that right – is a rapidly growing trend in the health and fitness industry.

Entomophagy – the eating of insects – is actually more common (and not as gross) as many in the developed Western world may think. In fact, 80% of the world's population eat bugs.

According to the Food and Agriculture Organisation (FAO) of the United Nations, there is a culture of eating insects that pervades Asia, Africa and Latin America with some two billion people in these countries consuming 1,900 different types of insects as part of their staple diet. And they do so out of choice, not due to a lack of suitable protein alternatives. In fact, for many nations insects are a delicacy.

■ ENTOMOPHAGY TRENDING

Why then should the rest of the world not do the same? Well, it seems many already are. Insect gastronomy is already a big trend in Europe and Japan as a new generation of chefs are blazing a trail in fine dining with insects as the hero ingredient.

So what's driving this trend? It seems that edible insects are the new buzzword in sustainability. This is because insects are an ecologically-viable food source as they require less resource-intensive farming and can be farmed using

side-stream food sources – what the FAO describes as manure, pig slurry and compost. They also require less land and water, and produce far fewer greenhouse gases than livestock, which means they have a tiny ecological footprint compared to other farmed protein sources.

According to Jess Tran, head of PR and communications at insect protein bar and functional food manufacturer Exo

(www.exoprotein.com), crickets are 20 times more resource-efficient than cattle at producing protein. "Crickets produce 80 times less methane than cows, for instance."

In a recent blog post titled "Why crickets are the future of protein", Tran explained that one pound of crickets requires just under two pounds of feed, compared to 25 pounds of feed needed to produce one pound of beef. "That's twelve times less feed than cattle, four times less feed than sheep, and half as much feed as pigs and broiler chickens to get the same amount of protein."

And while insects have a protein content comparable to other animal protein sources, they are free from the antibiotics and hormones used in modern farming that raise concerns over their impact on human health.

Tran adds that an insect's lifecycle is also much faster. "The average lifespan of a cricket is a mere seven weeks from egg to adult. This allows cricket farmers to yield much larger batches of insects. It's also more ethical to harvest crickets than it is to farm livestock."

"WHILE INSECTS HAVE A PROTEIN CONTENT COMPARABLE TO OTHER ANIMAL PROTEIN SOURCES, THEY ARE FREE FROM THE ANTIBIOTICS AND HORMONES USED IN MODERN FARMING THAT RAISE CONCERNS OVER THEIR IMPACT ON HUMAN HEALTH."

■ NUTRITION POWERHOUSES

Bugs are also highly nutritious. Mealworms, for instance, are packed with fibre, essential fatty acids and a variety of vitamins and minerals, in addition to their rich protein content. In fact, the average insect is around half protein by dry weight, with some insects such as locusts offering up about 75% protein.

And crickets are another veritable superfood, according to Tran, with a protein content of about 69%. To put that into context, Tran explains that an identical serving of chicken will only yield 31 grams and dried beef only 43 grams of protein. "The fact that the protein in crickets has all nine essential amino acids also makes it a perfect alternative protein source," she adds. In addition, these crunchy critters offer up a healthy dose of vitamin B12, more calcium than milk and more iron than spinach.

With so many benefits there are many people out there who predict that edible insects are the next big thing in nutrition. And that means big business, with a Global Market Insights report stating that the industry will be worth over \$522 million by 2023. Persistence Market Research has even higher expectations for the market, estimating that by the end of 2024, it will account for \$722.9 million.

■ INSECT OPTIONS

As the insect-eating movement gains momentum around the world, consumers looking to taste test the entomophagy trend already have a variety of options to choose from.

Fine dining restaurants in the US, Europe and Mexico, for example, serve up dishes such as sautéed beetle larvae, spicy cricket fritters, chapulines (crunchy fried crickets), red ant sauces, grasshopper guacamole, cricket mushroom pate, red palm weevil with truffle oil, worms with feta cheese and beetroot, and the Grass-Whopper – a hamburger with grasshoppers and chili sauce.

For the less adventurous eaters out there – or those who can't afford the price tag of these

delicacies – there are a growing number of companies that are creating insect snack packs. For example, Entomo Farms (entomofarms.com), an Ontario-based company, sells a range of cricket and mealworm snacks in their bistro.

By all available online accounts, these bug-based meals are delicious, but you first need to get over that 'grossed-out' stage of placing insects in your mouth. For some, this is a bridge too far, at least for now.

■ POWDERS & BARS

However, even the most squeamish of fitness foodies can now get their daily dose of insect protein without dry-heaving thanks to the burgeoning insect functional food and supplement

industry. In addition to Exo, there are a number of companies in Canada and the US that are packaging insect protein in ways that make it easy for consumers to add it to their daily diet.







To date, insect protein bars have been the most popular, with Exo and Salt Lake City-based Chapul manufacturing gluten-free, dairy-free and paleo-friendly products.

The major enabler of these insect protein-based functional foods has been cricket and other insect-based powders, which are made by roasting or otherwise drying the insects (Exo freezes, then dehydrates the bugs in a multi-step process that results in a neutral-tasting powder) and then grinding them up.

This is what has changed the game as insects can now be included in bars or used to fortify

foods, making it a more appetising proposition for consumers. It is also extremely versatile, with Exo's bars available in a range of tasty flavours such as apple cinnamon and banana bread.

"THE PROTEIN IN CRICKETS HAS ALL NINE ESSENTIAL AMINO ACIDS WHICH ALSO MAKES IT A PERFECT ALTERNATIVE PROTEIN SOURCE. IN ADDITION, THESE CRUNCHY CRITTERS OFFER UP A HEALTHY DOSE OF VITAMIN B12, MORE CALCIUM THAN MILK AND MORE IRON THAN SPINACH."

	 (90% lean) BEEF	 (Farmed) SALMON	 WHOLE EGGS	 TOFU	 CRICKETS	 MEALWORMS
Protein	22.4g	20.4g	19.2g	24.6g	31g	16.2g
Fat	11.2g	13.4g	15.2g	12.6g	8.1g	14.8g
Saturated Fat	4.4g	3g	4.8g	2.7g	2.6g	4.9g
Omega-3	0.04g	2.5g	0.1g	0.5g	1.8g	3.3g
Fiber	0	0	0	2.7g	7.2g	2.5g

Values per 200-calorie serving. Sources: USDA SR-25 and Nutritional and safety aspects of edible insects, Bridget A. Rumpold and Oliver K. Schuttler Mol. Nutr. Food Res. 2013, 57, 802-823.

■ FUNCTIONAL FOODS

These companies, and others, are also expanding their offerings with insect protein-enriched condiments, gluten-free cricket pasta, and healthier baked goods, to name just a few, all entering mainstream retail circulation in North America.

Chapul, for instance, now manufactures a cricket flour – which has a subtle, nutty flavour – that can be used as a one-to-one substitute for all-purpose flour in any recipe. And there are a host of other companies pioneering the insect food industry, such as Crowbar Protein with the company's Jungle Bar insect protein bar; C-fu Foods in Toronto that sells textured insect proteins that can replace traditional meat, soy, eggs or dairy when cooking; Portland, Oregon-based Cricket Flours that

produces products including cake mix; One Hop Kitchen that makes two bolognese sauce variants – one with crickets and the other with mealworms; Toronto-based Gryllies sells a pasta sauce made with crickets; and CrikNutrition, a Winnipeg-based company, sells a cricket protein powder.

With such a breadth of offering and diversity in the application of insect-based ingredients, it is unlikely that this is just the next in a long list of hipster foodie trends. Add to this the value proposition of a more sustainable and environmentally-friendly food source and it starts to seem like the edible-insect trend certainly has legs. So don't be surprised to see insects on the menu or insect protein bars at your local supplement store in not-too-distant future. ■

SEAR TUNA PERFECTLY

HEALTHY FATS AND PACKED FULL OF PROTEIN... WHAT MORE COULD A PHYSIQUE-CONSCIOUS MALE ASK FOR IN THE HERO INGREDIENT OF A MEAL?

Whether you want to slice it up and toss it in with a salad or use it as the main ingredient on your dinner plate, fresh line-caught tuna tops the shopping lists of most health-conscious individuals these days.

Preparation

STEP 1: Cut your tuna into 2-4cm tuna steaks.
STEP 2: Sprinkle your seasoning onto the cutting board. Place both sides of the tuna on it.
STEP 3: Rub olive oil over both sides of the tuna.

Cooking

STEP 1: Ensure your griddle pan is searing hot before placing your tuna on it. Press the tuna down into the griddle.
STEP 2: Cook on one side for 90 seconds.
STEP 3: Lightly rub a bit of olive oil on the top side before turning. Press the tuna down into the griddle.
STEP 4: Cook for another 90 seconds.

Serving suggestions

STEP 1: Leave to rest for a few minutes, then rub the cooked fillet with virgin olive oil again.
STEP 2: Squeeze the juice of half a lemon over the tuna steak.
STEP 2: Slice and serve with the remaining juices in the pan as a drizzle.

COOKING GUIDELINES FOR A 2CM THICK TUNA STEAK (PER SIDE):

■ 90 seconds per side

IDEAL SEASONING OPTIONS INCLUDE:

Himalayan rock salt, Pepper, All spice, Coriander, Lemon zest, Cinnamon, Fennel seeds, Parsley, Thyme, Dill, Garlic powder

HOW TO PREPARE YOUR SEASONING:

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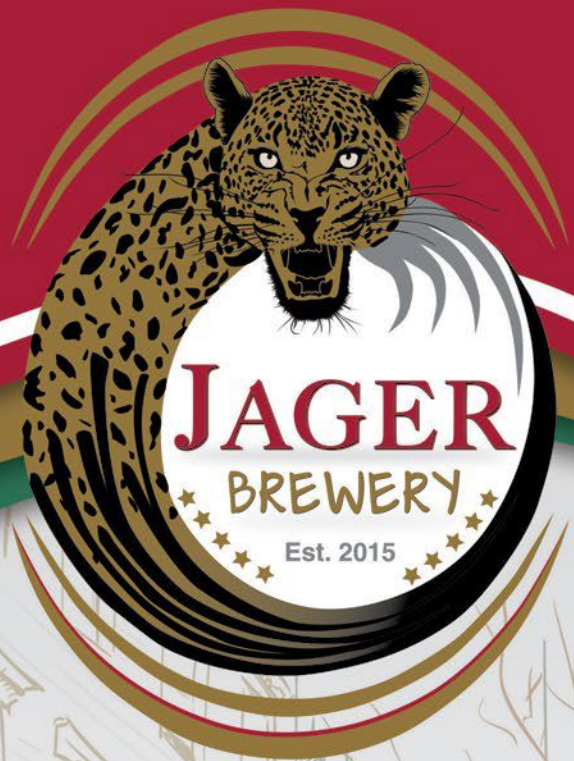
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