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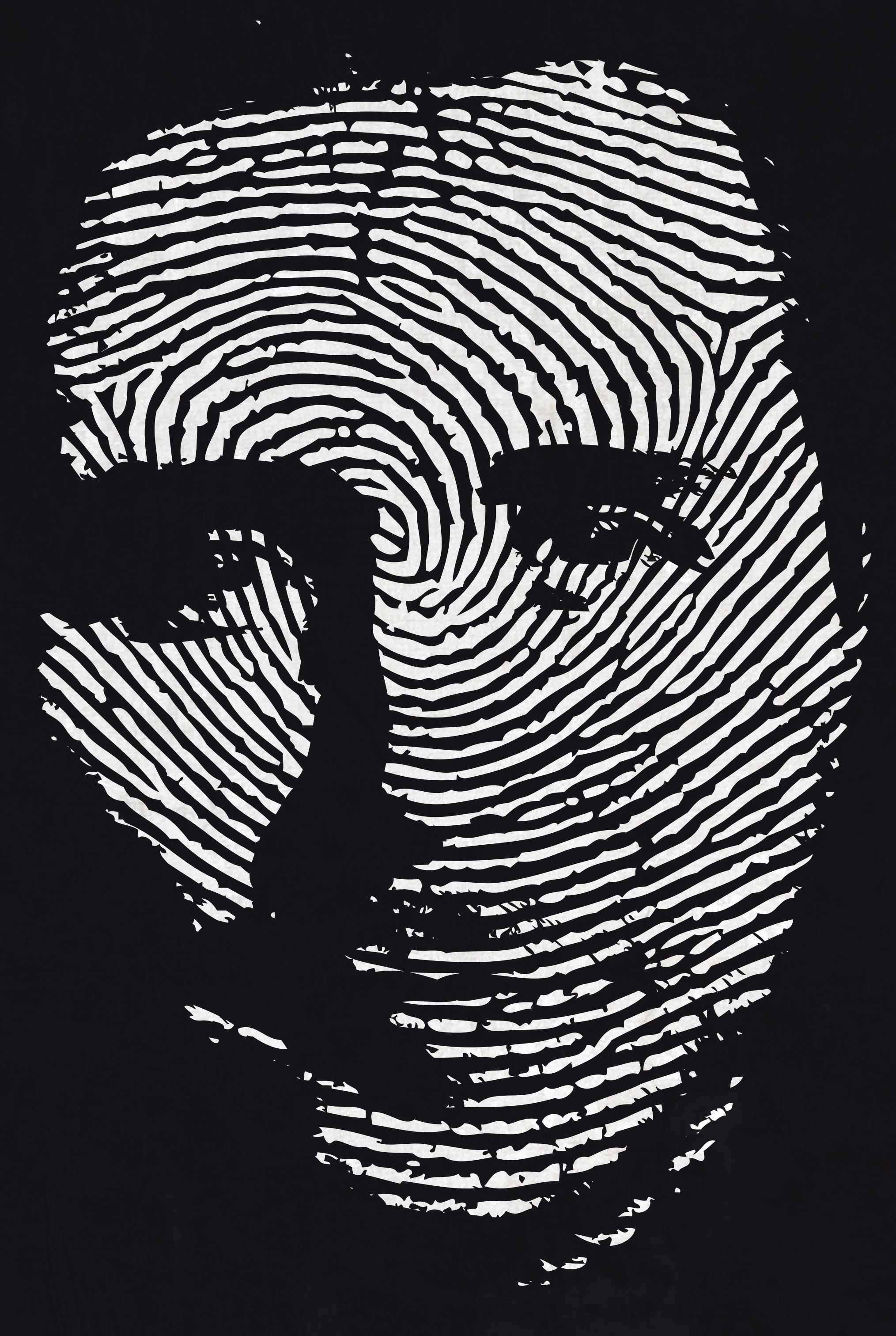

Murmur 2012

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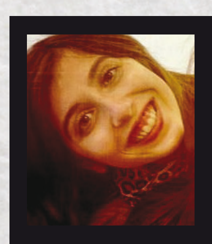

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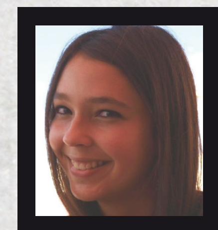

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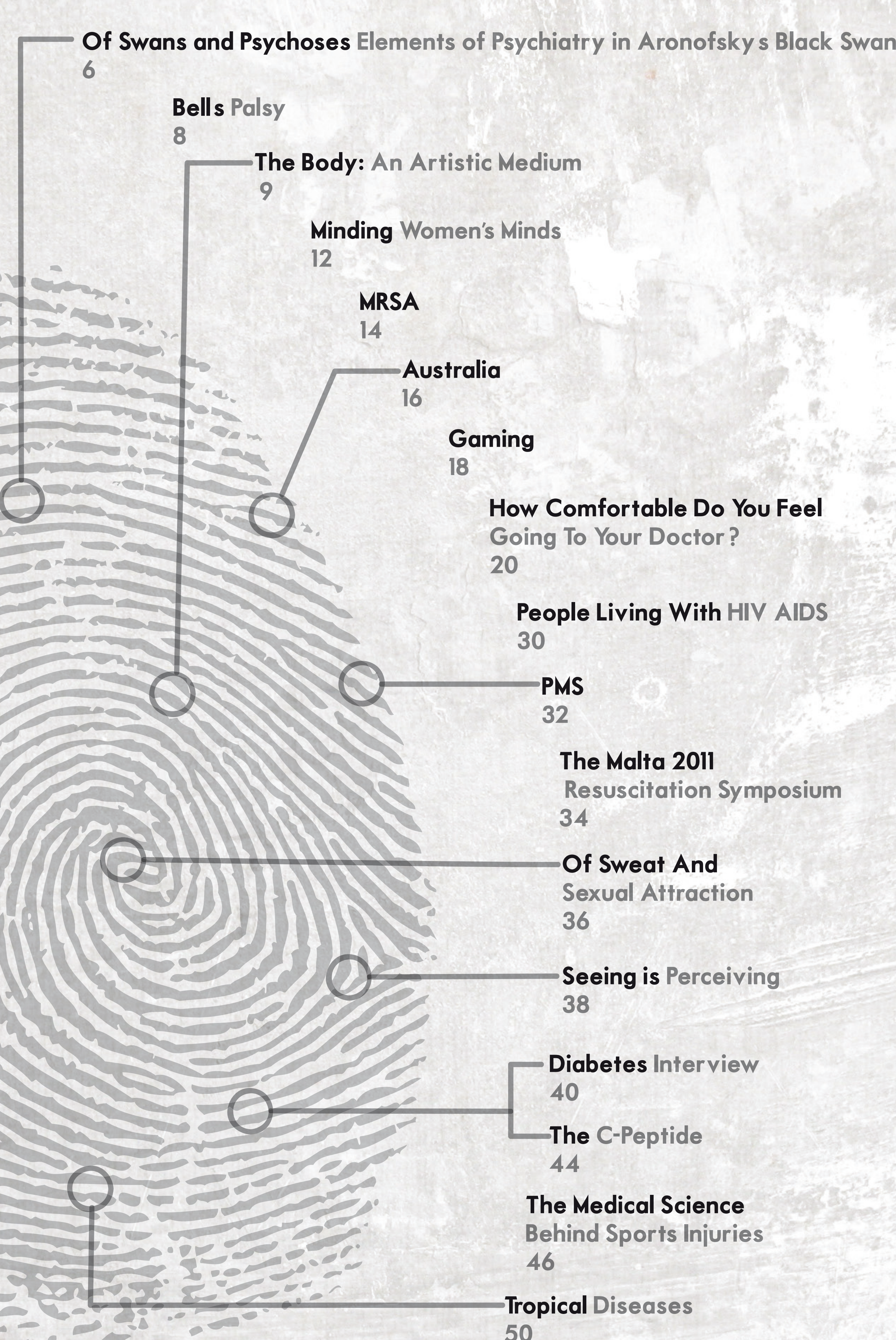

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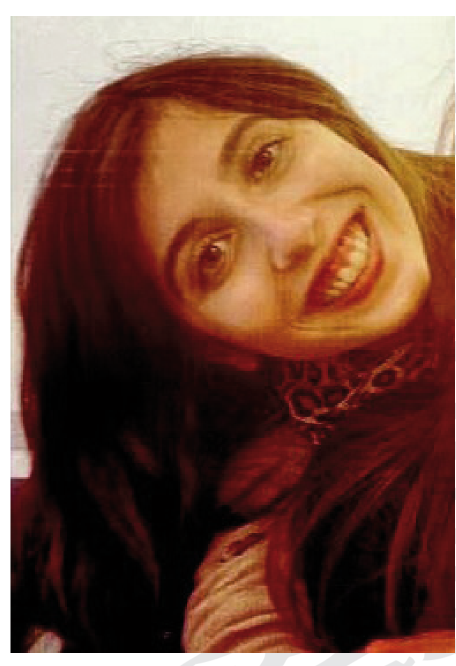


As Ralph Waldo Emerson once said, "The first wealth is health". And don't we all give this a lot of importance?

The theme for this year's Murmur is Health. Medical students spend five years learning what could go wrong with the human body, and how they can then fix it. We choose to spend endless hours poring over books because we know that this is what it takes to reach our goal. Every individual has a goal, an aim, something they would like to achieve.

Let's take this to another level. Am I wrong in stating that a common goal for everyone is to be healthy? Whether it's down to earth and patient-oriented, spiced with a tropical touch, whispered as an old wife's tale or given an artistic twist - every article in the magazine you're holding is part of a spectrum: Whether it concerns mental health, sexual health or physical health – it all sums up to that one word!

Murmur's cover represents a face engraved in a fingerprint. Being a very subjective issue, what's better than introducing an aspect of identity to the theme? Each article is attributed to a different aspect of health, and whether it's directed at me, you, him, her, us or them – we all strive to be healthy.

Last but not least, I would like to take this opportunity to thank all the Media team for their support, the authors for their contribution, and the creative minds behind the design. A big thank you goes to the rest of the MMSA executive board, who were part of this rewarding year for MMSA.

I hope you enjoy reading Murmur, the editorial team definitely had fun compiling it :)

"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being"

World Health Organisation

Elizabeth Gialanzè

President's Message

As I write this message, myself and the rest of the Executive Board (EB) are nearing our mid-term milestone. The past six months have been very busy, with numerous outreaches and informative campaigns, the holding of an EGM, the rebirth of projects and an entire standing committee, memorable parties, involvement within agencies and widespread representation, both locally and abroad.

One of the main aims of the EB this year was to put the focus back where it belongs, that is, to make a medical student's experience in the MMSA a positive and healthy one. We recognize that this association gives medical students many opportunities and many emotions, and I strongly believe that one's experiences at university are greatly enriched when one endorses an active role in a student association, especially if that association happens to be the MMSA. The large number of active first years and the increasing recruitment of medical students in the second up till the fifth year stand as a testimony to this. We tried to ascertain that no talent passes by unnoticed and we strived to make sure that students got as many opportunities as possible to develop and nurture their skills.

Additionally, this term we wanted to strengthen what previous EBs had so meticulously built up by maintaining existing protocols, policies and processes as well as improving them by reviewing them constantly and adapting them to the changing needs of a dynamic association. As one of our lecturers used to tell us, structure subserves function, and hence we acknowledge the importance of having strong foundations upon which the MMSA can continue to expand on its already high standards. Therefore we do our utmost to guarantee an infrastructure that not only facilitates organised administration but additionally creates opportunities for influential performance.

Ever since I became part of this thriving association I was always drawn to how the MMSA is self-sustainable whilst managing to maintain strong ties with externals, creating networks with national and international bodies in order to serve medical students and the Maltese public in the best possible way. It is with great pride that I look back on the past months, whilst still keeping in mind all that we have planned for the next part of the term and facing it with determination and motivation.

As a concluding note, I would like to thank the EB for their continuous hard work and also for the excellent teamwork shown even before the start of term. I confidently attribute most of the successes we had this year to the inter-EB camaraderie which has permeated throughout the entire medical student body. I would also like to extend my gratitude to all those who in some way or another showed support for MMSA.

I invite you to read through the following pages Murmur whilst hoping that you find it enlightening and stimulating. There is no growth and there is no progress with apathy, so please feel free to provide us with your feedback. It is essential to us that we hear, listen, process and act upon the opinions of those who care.

Ann Farrugia

Of Swans and Psychoses Elements of Psychiatry in Aronofsky's Black Swan

Mental illness is a motif that has embellished film since its early days. Indeed, one may trace it as far back as 1920 to the silent horror film The Cabinet of Dr Caligari, with its eerie depictions of mania and sleepwalking, up to Lars von Trier's recent award-winning Melancholia. Film's use of complementary visual and aural imagery makes it uniquely apt at depicting the subjective phenomena that often accompany psychiatric disorders, in a way that writing, acting, or music alone cannot quite achieve. The best-made films in this regard are those that succeed at presenting the same subjective, distorted reality that the afflicted person is experiencing, often with a resultant blurring of the demarcation between fact and fiction, reality and illusion. One master acrobat at this act of tightrope walking has to be Darren Aronofsky, director of the highly-acclaimed Pi, Requiem for a Dream, The Wrestler, and, most recently, Black Swan.

Aronofsky's excellence at exploring psychiatric elements in film lies in his ability to entwine these elements with both storyline and characterization, while also employing cinematographic techniques that enhance the theme in question. Thus, for example, in Pi, Max Cohen's cluster headaches, paranoia and social anxiety disorder are presented through a grainy, black-and-white film, with the intensity of his pain and anxiety being communicated through repeated sequences of pill-popping and the distorted buzzing and whirring sounds in his head, culminating in his resorting to trepanning his right temple with a power drill in a last, desperate attempt to make it stop. Similarly, in Requiem for a Dream, the stark horror of addiction and the spiralling descent into horrors greater still is evoked by the build-up of tension created through the recurrent sequences of drug preparation, pupil dilatation, and as well as the mother's graphic deterioration and eventual electroconvulsive therapy. In both movies, the soundtrack by long-term collaborator Clint Mansell greatly accentuates the movies' emotional impact on the viewer, to the extent that it's well-nigh impossible to recall scenes from Requiem for a Dream without also recalling the haunting strings in its leitmotif 'Lux Aeterna'.

But what of Black Swan?

Black Swan is a psycho-drama which draws on a number of archetypal Aronofsky tropes, including a wide spectrum of psychopathology and the deployment of dark, disturbing imagery. Like Pi, Requiem for a Dream, and The Wrestler, it also dabbles with strong psychosexual elements as well as drug use, all of which further complicate the film's heavily psychological framework. Another parallel with The Wrestler is its focus on the price to be paid to reach excellence in one's art. In The Wrestler, Randy "The Ram" sacrifices his health and familial relations to be the best in the ring – in Black Swan, the price to be paid might well be the loss of one's sanity. This sacrifice culminates in the final scene, at which point it's the protagonists' very lives which hang in the balance, and the zenith of their artistic careers is only to be achieved through death. Both movies also explore the tragic indignity of growing old, in the latter movie being embodied by Winona Ryder as the retiring dancer Beth.

Nina Sayers, the fragile and repressed ballerina at the forefront of Black Swan, vies for the lead role in a new production of Tchaikovsky's "Swan Lake" – a role which requires her to master and embody both the White Swan, symbolizing purity and perfection, and the Black Swan, the incarnation of sensuality and self-abandonment ("letting go"). This classic duality introduces the doppelgänger motif – the theme of the dark, paranormal double – explored in Dostoyevsky's The Double: A Petersburg Poem, which has been cited by Aronofsky as a main influence in the making of this film.

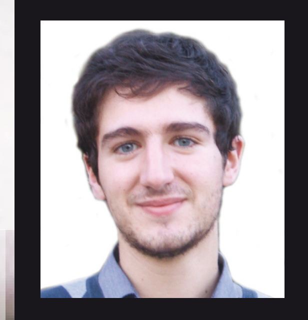
In Black Swan, Nina's double is both her "inner dark self" – the wild spirit fettered by years of repression, desperately attempting to surface through a bite during a kiss – as well as a tangible one, the sexually open dancer Lily, who also happens to be competing for the lead role. These two doubles – the conscious and the subconscious – come together, within Nina's psyche, twice: first during a lesbian sex scene, and then again during a duel to death, not coincidentally involving mirror shards. This "coming together" is reminiscent of Hegel's concept of Aufheben, with its interaction between thesis and antithesis, and the resolution of this conflict remains subject to philosophical debate. Does Nina pass through sex and death to a state of synthesis, of perfect symbiosis of White and Black in keeping with her role, or does her demise signal the overthrow of the thesis by its antithesis?

The approximation of the two opposites could only occur during a state of "loss of contact with reality", or, medically, psychosis. Indeed, psychosis proves to be Nina's gateway to unifying light and dark, innocence and corruption, technical rigour and "letting go". Through psychosis, Nina achieves perfection in her performance. In Black Swan, psychosis is presented through hallucinations, which are both visual (e.g. her metamorphosis into a black swan) and auditory (whispering) in nature. It is worth noting that while visual hallucinations are almost exclusively due to neurological problems, rather than psychiatric causes such as schizophrenia, one must concede that visual hallucinations are much more dramatic than auditory hallucinations alone, and therefore make for better on-screen material. Psychiatrists commenting on Black Swan also identified numerous elements which could have precipitated her psychotic episodes, including her highly stressful environment, electrolyte abnormalities secondary to repeated vomiting, and the abuse of ecstasy. Any of these, in conjunction with genetic predisposition, could have triggered psychosis.

Hallucinations are not the end of the story, however. Nina's psychosis also manifested with delusions, most of which are paranoid in nature, such as her certainty that Lily is trying to usurp her role. One may also argue that Nina is suffering from the syndrome of subjective doubles, the rare delusional misidentification syndrome in Dostoyevsky's The Double, in which the individual believes that he/she has a double with the same appearance but with different character traits and leading a life of its own. In Black Swan, it is unclear whether Nina considers her double to be external to her and to what extent is that role occupied by Lily, but at one point early in the film she does walk past an exact copy of herself dressed in black, which one may interpret as being the Black Swan to her White Swan.

The film also alludes to an array of anxiety and eating disorders. Her frequent hand-washing and her proclivity to line up the make-up in the dressing room point to an obsessive-compulsive tendency, and her scratching and cutting is consistent with dermatillomania, an impulse control disorder considered to be part of the OCD spectrum. We see hints of anorexia nervosa as we witness the frugality of her breakfast and see her turn away the cake her mother buys to celebrate getting the coveted role. We also see her making frequent bulimic trips to the bathroom. While anxiety and eating disorders show a high degree of comorbidity, their association with psychosis is somewhat tenuous. Indeed, as Jonathan Abramowitz, associate chair of psychology at the University of North Carolina, points out: "People in psychosis are not in touch with reality. With eating disorders and OCD, they are too in touch with reality. Psychotic patients don't care about social interactions and what they look like and speech starts to deteriorate. It's the polar opposite with anxiety disorders and OCD."

Despite all this, criticising Black Swan for its scientific inaccuracy is, in my opinion, a major oversight one should resist partaking in. For all the questionability of her symptomatology, the story of Nina Sayers remains a profound reflection on the complexity of the psyche and an imaginative chronicle of our frail attempts at attaining clarity and perfection in an altogether misshapen and imperfect world. This breadth of vision is, I feel, the best validation a director can offer to justify further exploration of the mind and mental illness through film.



Bell's Palsy

Have you ever browsed across a room during one of those tedious Friday afternoon lectures to observe the expression on people's faces? The attentive at the front with furrowed foreheads inhaling knowledge; the lethargic in the middle row with progressively drooping eyes; the mischievous at the back sporting a trademark sarcastic smile and the eager usually found closest to the door!

Intriguing isn't it; the fact that with so little effort we can communicate so much? Even more intriguing is the fact that such a wide array of expressions and emotions are possible thanks to a single nerve, namely the Facial nerve (the 7th cranial nerve of which there are 12), which is responsible for the innervation of the so called ''muscles of facial expression''.

It comes as no surprise therefore, that damage to the above-mentioned nerve could have drastic consequences.

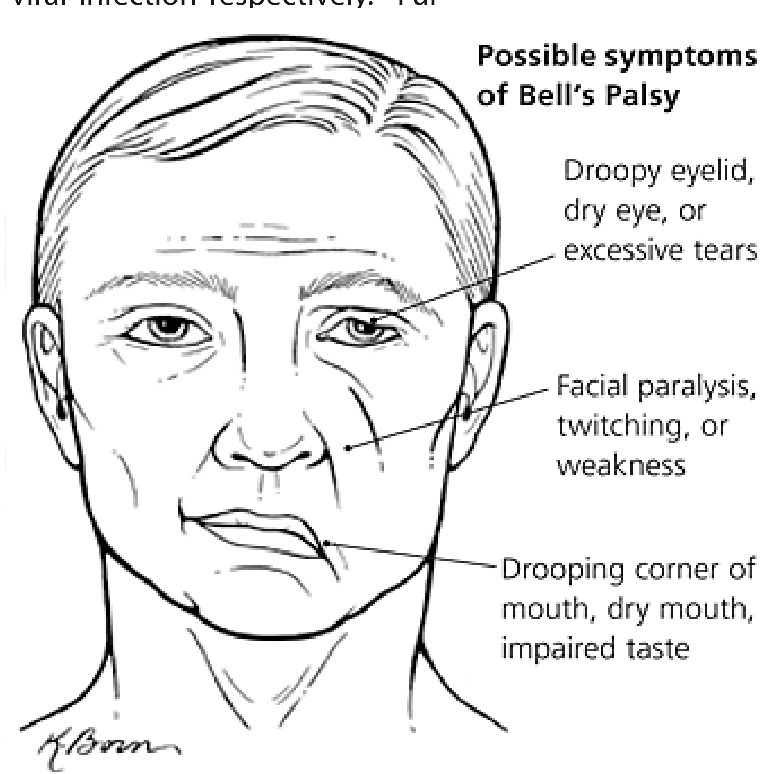
Bell's Palsy is the most common cause of temporary facial paralysis as a result of damage or trauma to one of the facial nerves. It generally only affects one of the facial nerves and the ipsilateral side of the face, but on rare occasion it may affect both nerves. Symptoms manifest themselves suddenly, reaching a peak within two days. Different individuals experience different symptoms, which may range from mild weakness of the facial muscles to total paralysis of the face. Since the facial nerve is divided into 5 principal branches innervating different parts of the face, various areas are affected and symptoms include; twitching, weakness or paralysis, drooping eyelid or corner of the mouth, impaired taste and excessive lacrimation commonly due to the inability to lower the upper eyelid.

Bell's palsy often causes significant facial distortion. Bell's palsy is idiopathic, however it is believed that viral infection such as viral meningitis and Herpes Simplex may result in this condition if the nerve swells and becomes inflamed as a result of infection.

Although the condition may be aesthetically alarming and there is no cure for it; the prognosis for individuals with Bell's palsy is generally very good. The extent of nerve damage determines the extent of recovery. Progress is seen within 2 weeks of initial onset of symptoms and complete recovery occurs within 3 to 6 months. However this is not always the case and symptoms may persist for over a year.

> "the prognosis for individuals with Bell's Palsy is generally very good. "

Corticosteroids or other anti-inflammatory and antiviral medication may be prescribed to relieve the symptoms and control the viral infection respectively. Furthermore, a physician may also suggest physical therapy, which may include exercising your facial muscles and massaging the affected side of the face. Surgery is rarely recommended in cases of Bell's palsy.



Kelly Iles

The Body: An Artistic Medium

Throughout history, especially in the last century, technological enlightenment helped reveal complex structural and functional aspects of the human body that increasingly became described and employed as a work of art.

'Sensory Worlds', a conference organised by IASH (the Institute for Advanced Studies in Humanities), at Edinburgh University, addresses the physio-sensorial aspect as a subject of art, displaying works by various accomplished artists (along with the presentation of academic papers) within Inspace in Edinburgh from the 7th to the 11th of December 2011. The theme focuses on the sensorium, as viewed from diverse disciplines such as architectural theory and cultural ecology; such diverse departures questioning the way we interact with our environment. Observations are made on how the physical, medical and cultural conditions, embodied within nature and the environment, interrogate the constant shifting of attention and social engagements as oriented or sometimes disoriented via the sensory systems.

This is an elaborated expression of contemporary art, expressed through installations and experiential works. In accordance with the nature of this article, I am going to outline only the works exhibited by the Art, Space and Nature postgraduate students.

The Works

The work of Inbad Droval (Israel) departs from the observations of the 20th century doctor Duncan MacDougal. Experimenting, he put six dying people on a bed with sensitive springs and noticed an abrupt weight loss of ¾ of an ounce on the exact moment of death in each subject. Since the loss was in no way related to bowel movement or evaporation, he concluded that it corresponds to the weight of the soul.

A medical scale is exhibited at 20g less, signifying the presence of a soul, 'not contained by its natural vessel but still bearing a weight'. The work gives it a natural dimension through the scale to suggest the existence of a spiritual medium … suggesting the body as a means for the soul and through which our mind and memories, perceive and recall the outside world.

(continued on next page)

Laura Trujillo Muñoz (Colombia) proposes a more virtual experiential exercise. She challenges the concept of reality as being only likened to our five senses. Berkeley once said “to be is to be perceived”. No one denies the existence of radioactivity, however idle our sensorium is towards it. Other entities exist which do not fall under our proprioceptive jurisdiction. Muñoz proposes thought as the purest act of perception, whereby entities are created, which are perceived despite their physical lacking, many-a-time leading to proliferation of our more physical senses, for it is through thinking that we are aware of our sensory fields.

Rosalie Monod de Froideville’s (Holland) experiential art involves the introduction of an alien entity to the visitor’s body. For the purpose of this exercise, a small red pouch, containing an empty eggshell was pinned onto the visitor’s clothing.

The concept of ‘the body within the brain’ translates to the fact that a hand or face exists as much in our mind (in a series of nerve structures or a ‘neuron concept’ in the primary somatosensory cortex), as it does in the physical form. Our very own topography i.e. the physical boundaries of our body and our propriorecpetive sensations, are “mapped” within our neuroanatomy, bringing about our ability to map out shape and nature of objects by simple touch.

The “phantom limb” phenomenon correlates to people feeling tension or itching within a region of space previously occupied by a limb having been amputated. Body Integrity Identity Disorder sufferers (people with appendage transplants) feel that part of their body does not belong to them, their brain mapping not having yet incorporated the affected limb into its understanding of the body’s physical form.

Another extreme of perception is Extended Physiological Proprioception, which comprises the ability to perceive sensation at the tip of a ‘tool’, correlating to the way two hundred years ago a soldier mastered swordsmanship, which intrinsically does not differ much from the way people today use tennis rackets or drive vehicles.

According to the artist, “…by adding an alien element to the visitors’ bodies that is not part of the inner body mapping but needs to be negotiated within it, I will cause a short-lived disturbance of the mapping, creating a sense of heightened bodily awareness and a renewed experiencing of the makeup of the body.”

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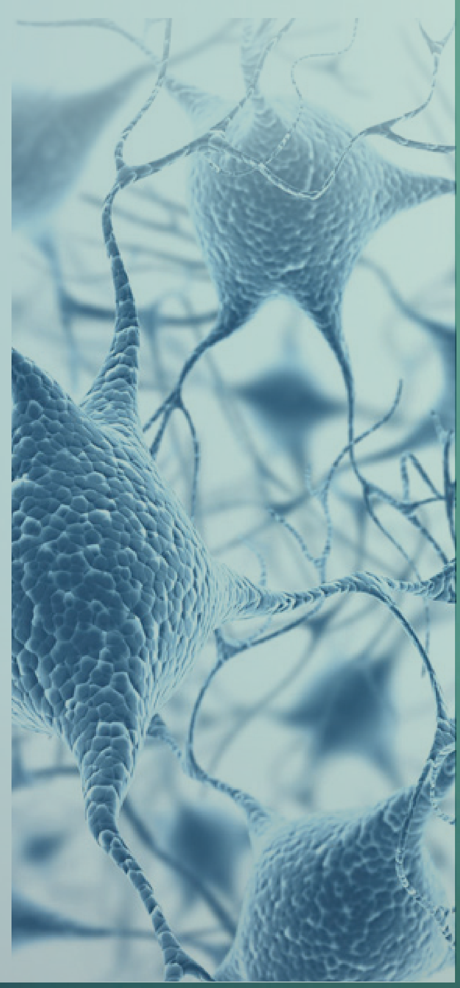
Joseph Calleja’s performance, (Malta) reflects on the positivity of sound, taste, smell, and touch against the “state of detachment and passivity” (C.Classen) that sight (as a dominant form of perception) might have created within contemporary culture, where observation without physical contact predominates.



Old Wives' Tales

Breast implants increase the chances of cancer.

If you're thinking of augmenting your bust size but you're concerned about breast cancer, worry no more. Studies have shown that there is no direct relation between breast implants and cancer of the breast. However, on the downside, if particular nerves of the breast are damaged during surgery, the woman will not be able to breastfeed.

The artist proposes to render his sight less detached from his other senses by relieving it of any artificial interference or correction, letting it exist in its natural astigmatic form.

Having archived his glasses on an exhibition stand in the way of an artefact, the artist forfeit his aided sight from 7th to the 9th of December(the duration of the conference), producing one very personal experiential work. By temporarily limiting his sight to a disabling extent, he detached himself from the dominant sense that is vision, to explore more and become one with the rest his bodily senses.

Mersa Anasstasiadou (Greece) and Deeksha Surendra (India) presented an experience whereby non-edible objects normally forming part of the general furniture or make-up of a room would be replaced by edible replicas around the seminar space in their usual places (edible books would be placed alongside other books within bookshelves), the replicas being labelled with "eat me" or "drink me" accordingly.

This "would create a paradox between the vision and concept" (what we perceive through experience and sight to be metal, wood, textile, we now can perceive also through taste).

Catriona Gilbert's (Scotland) artistic product goes by the title of "7-13Hz", altering the dynamics dominating the relationship we have with our senses.

Two tones are elicited (at slightly different frequencies) one to each of the visitor's ears using headphones. However, neither are perceived by the sensorium. Our brain instead perceives a frequency in between (a binaural beat) which is really a physiological interpretation. Binaural beats affect the brain in subtler ways than the entrainment of brainwaves.

Betsy Davis (U.S.A), experienced in yoga practice and Jungian psychology, presents "Blessing Menu", which entails the use of Theta-healing and Reiki by concentrating energy through finger-drawing ancient symbols on the visitor's body, having previously discussed this with the person in question and explored their weakest physical attributes. Energies which are not usually physically perceived do actually enter and leave our bodies, but many-a-time unnoticed and unused. Only on conscious tuning through meditation one can reach solace, healing, and mind and body balance.

Allyson Pattie's (Scotland) entitles her work "hearing hands" through which the participant experiences sound by way of touch.

A rectangular box with a timber frame and fabric lining, encasing two speakers emits vibrations. This explores the concept of applied perception, interpreting sound through touch.

These works, together with the other exhibits are better comprehended within the framework of the elaborated expression of contemporary art that this conference was. Such an event targets diverse fields of interest, from art to spirituality to science, bringing people from various walks of life and fields of expertise together, effecting the pooling of resources, establishment of new relationships and thereby, acculturation. It is this trend of new contemporary collaborative dialogue that is interesting and worth keeping a tab on.

Michael Tabone

Minding Womens' Minds

The issue of women's mental health is one that might, at first instance, provoke a smile. Jokes about PMS and the inability of men to understand women's minds are rife in the media and in everyday life, but that does not change the fact that this is an extremely important topic, which like mental health in general, is often glossed over in favour of the more 'exciting' branches of

As the WHO points out, gender not only has an effect on the rates of certain psychiatric disorders – such as unipolar depression, which is twice as common in women – but also on the progression, prognosis and overall effect that the disease has on the life, work and efficiency of the person involved.

Gender affects the age at which symptoms start to manifest and their frequency and durability, as well as the rate of social adjustment to the disease and the outcome in the long-term. Women are also more likely to have multiple co-morbid disorders, which in turn is associated with greater disability.

The effect of sex is not necessarily negative – studies have shown that women suffering from schizophrenia tend to have a more benign course to the disease, with a lower risk of rehospitilisation and better competency socially and sexually. However, they are also at a higher suicidal risk.

The reasons behind these differences are various and not always fully understood. Literature refers to many factors as pertaining to gender, and not sex, probably because it is often the social and psychological position of women in society that impacts these patients, rather than the biological differences in the double Xs.

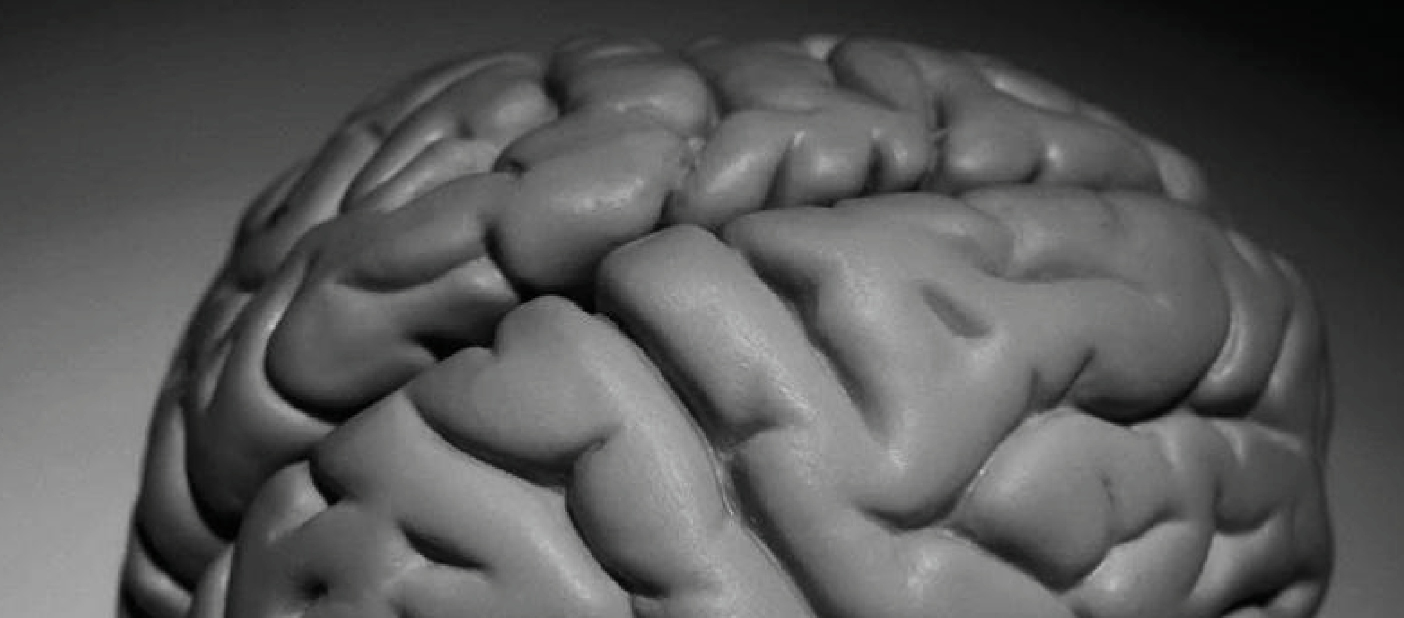
Physiological – and especially hormonal – differenceshowever do have an impact, and may partly explain, for example, the higher rate of depression in women. Biological factors also lead to a set of problems unique to the female sex.

The menstrual cycle can often impair function considerably, with 60% of women experiencing at least minimal premenstrual symptoms. For many women, the last week of the luteal phase can lead to a disruptive mood, with poor concentration and apathy, increased irritability and depression and an overall disturbance to their well-being and their ability to keep up with the necessities of daily life.

A decrease in the number of menstrual cycles does not always mean a decrease in the number of problems, as menopause is a time of change that has an effect on most women - although depression linked specifically with menopause is controversial, as studies do not show an increase in the incidence of depression in this age group.

Perinatal psychiatric disorders, including postnatal blues (very common), post-natal depression (which occurs in 10-15% of women) and the rarer puerperal psychosis (which can feature severe disturbances in the thought process and the perception of reality) have led to the recent development of a new sub-speciality in psychiatry. Pregnant women are at anincreased risk of developing new affective disorders, as well as relapsing from controlled pre-existing disorders.

Abortion, on the other hand, is abit of a hot topic, with some



proponents arguing its lasting effects on the psyche; whereas others propose that those effects are not greater, and possibly smaller than, the mental anguish produced by an unwanted pregnancy and the rearing of the resulting child. Research in this area is often tinged by political and religious views.

Abortion typifies the type of dilemmas and complex decisions which women may face throughout their life, often without parallel situations being found in their male counterparts. The psychosocial aspects of being a woman should therefore not be ignored. While going into the difficulties faced by women in modern society is beyond the purpose of this article, it must be appreciated that nowadays many women do occupy various roles – many have jobs but are still the primary 'home-makers' of the family. They often have to deal with less respect and lower wages than their male counterparts, while at the same time juggling the role of housewife, mother, and partner.

These roles require high levels of energy and time management skills, and the ability to switch from frequently clashing identities. These efforts are often unappreciated or unsupported, and may lead to exhaustion, high levels of pressure and a lack of self-worth.

Social isolation is also more likely, compounded by issues such as single parenthood, a longer life expectancy and lower social mobility – as well as a greater susceptability to poverty. Poverty, exemplified by a low income and a lower socioeconomic status, is a well-known risk factor for psychiatric issues. Moreover, domestic violence and sexual abuse are commoner problems in women, who are also the group most likely to be affected by post-traumatic stress disorder.

Finally there is the issue of gender bias, as doctors are in fact more likely to diagnose depression in women, as well as to prescribe mood-altering psychotropic drugs to a female patient - even when their presentation is clinically identical to a male patient's.

Women's mental health, in short, is a complex and multifaceted issue that delves far beyond simply listing a specific set of disorders, or varying ratios of incidence and morbidities between sexes. It is also a topic which is unfortunately often brushed aside, and occasionally ridiculed. Many of these women suffer in silence, unwilling to seek help, or not knowing that help is possible. It is up to us, the health professionals of tomorrow, to be on the lookout, and to provide education, support and respect. We donot need scientists to tell us that emotions are a large, warped, complex affair, but research has shown one thing – sometimeswhat helps these patients most of all, is just to be 'taken seriously'.

Stephanie Azzopardi

MRSA

What is MRSA?

MRSA stands for Methicillin-resistant Staphylococcus aureus. Staphylococcus aureus is a Gram-positive bacterium found colonising the skin or nose of about 30% of healthy individuals. These individuals do not experience any symptoms unless there is a break in the skin, in which case, they may suffer from anything starting from a mild skin infection to a severe and possible fatal illness especially in young children, the elderly and individuals with a diminished level of immunity such as patients with kidney failure who are on haemodialysis. Some strains of this bacterium have developed mechanisms of resistance against penicillin-related antibiotics such as methicillin. These strains of Staphylococcus aureus are known as MRSA. One can become colonized by such a strain through direct contact with an individual or surface that is contaminated with MRSA or via inhalation of tiny droplets spread by breathing, coughing and sneezing.

Types of MRSA infection

There are two maintypes of MRSA infection and these are hospital-acquired MRSA and community-acquired MRSA. Individuals who are currently or were recently hospitalised have an increased risk of becoming infected with hospital-acquired MRSA especially if they have been on antibiotic therapy or were in close proximity to patients contaminated with MRSA. Healthcare workers may themselves act as a means of transmission if they do not follow proper protocol such as changing gloves or washing hands in between the treatment of one patient and another. Surgical wounds and intravenous (IV) lines are also risk factors for hospital-acquired MRSA as they create an opening in the skin through which bacteria can enter the body. It is therefore essential that such sites are kept clean and that IV lines are not left inside the patient for longer than is necessary.

Most healthy individuals who are colonised by MRSA experience no symptoms, however certain situations predispose one to community-acquired MRSA infection. Risk factors include obesity, skin trauma and sharing of personal items such as razor blades and towels.

Signs & Symptoms

MRSA infection, especially in the community setting, presents as a cluster of pimples or as a large pus-containing lump (carbuncle) at the site of a previous skin abrasion. The area becomes progressively more tender, red, swollen and is also warm to the touch.
In the healthcare environment infection may spread through a damaged area of skin and via the bloodstream such that the patient would present with fever, fatigue and extreme weakness, low blood pressure and possibly also joint pains. Shortness of breath could indicate a possible pneumonia as a result of the MRSA infection, while involvement of the heart valves (bacterial endocarditis) would cause shaking chills.

Management

MRSA infection is diagnosed by taking a sample from the site of skin infection and then culturing the bacteria. If the infection has spread internally (systemically), blood tests and imaging studies such as plain X-rays, CT scans and echocardiograms (to evaluate the heart valves) would be required.

MRSA infections are difficult to treat due to the bacterium being resistant to many commonly-used antibiotics. In 2011, another one of the mechanisms enabling this resistance was discovered. It was found that MRSA bacteria contain a CFR protein that prevents antibiotics from binding to the bacteria's own ribosomes (protein-producing cell components). This has rendered those antibiotics, which work by trying to eliminate the bacterium's protein supply, useless. The CFR protein was initially discovered in other species of Staphylococcus, however the gene that codes for this protein is mobile, thus allowing for transmission between the various species. The results of this study have instigated the search for new drugs to combat MRSA infection, but for now alternative antibiotics including sulfonamides, tetracyclines and glycopeptides are being used, with the latter mainly reserved for the more severe hospital-acquired MRSA infections.

Latest Updates on MRSA Prevention

Besides avoiding the risk factors mentioned previously such as ensuring that healthcare providers clean their hands properly with soap and water or alcohol before and after each patient, there are a number of other things one can do to prevent infection with MRSA. Recent studies have shown that MRSA is present in raw pork, beef and even poultry, therefore it is not only important to ensure that the meat is cooked all the way through before eating, but also that one's hands are kept clean and that any open wounds are properly bandaged when handling raw meat. Although nasal carriage of MRSA has not yet been scientifically linked to a higher incidence of systemic infection, researchers have found that drinking tea and coffee can decrease the nasal colonisation by up to about 70%. One possible reason for this is that both of these drinks decrease iron absorption which Staphylococcus aureus requires for growth. Milk pasteurisation is also an important means of preventing MRSA infection as, in 2011, a new strain was discovered that was common to both man and cattle.

In terms of MRSA prevention in the hospital setting the way forward seems to be through the use of antimicrobial scrubs combined with good hand hygiene. Such scrubs are not yet in use, but studies have shown that these would be effective in reducing the burden of MRSA on the health care workers' apparel and could be an additional means of combating the ever-

Sarah Vella And Simon Micallef

Old Wives' Tales

Staying out in the cold will give you a cold.

I'm sure your mother has told you this sometime or other. Yet this is very untrue. Colds are caused by viruses which are spread through inhalation of infected air droplets sneezed or coughed by an infected person, or by touching something that an infected person has touched and then transferring the germs to your mouth or nose. You don't get it from cold air, slush, wind, or other wintry conditions. Cold viruses are more active in the winter and that's why people get more colds during this season.

Australia

It was really such a great pleasure to get to meet some members of the current MMSA EB at the hospital cafeteria last summer. The memories of the good old days started rolling by, and since then, every time I see an MMSA event being advertised on Facebook, I can't help but reminisce on those good times.

It's therefore great that I get the opportunity to share some of my experiences on Murmur. I've been asked to write about my move to Australia and what it's like to work as a doctor 16,000 km away.

First of all one needs to state the obvious: it wasn't easy. I still remember the day, almost 5 years ago, when I was sitting at the doctors' quarters at St. Luke's Hospital at 10pm, and checked my email to find a job offer from St. Vincent's Hospital in Sydney. This was followed by a second job offer for my girlfriend (now my wife) Lisa, who is also a doctor. So with job offers in hand, we embarked on the long road to Australia. The amount of paperwork one needs to go through is unbelievable. Applications for visas, registration with medical boards, health checks, and yes, an English test (Malta isn't considered an English speaking country and judging by some comments I see on local websites, I can see why).

Three months down the line our stuff was packed, our goodbye parties were held and we embarked on our new adventure. It was exciting but daunting and we didn't really know what to expect. To our surprise, it was very easy to fit into the Australian medical system - especially when, in Sydney, your patient list consists of a Farrugia, Borg or Vella! Maltese medical training is really good and Australian medical systems are similar to those practised in Malta and in the UK. Like in Malta and unlike the USA, Australians are entitled to free healthcare via Medicare. Private medical care is also excellent, but unlike Malta, it actually compliments the public health system rather than competing with it, and there are strong tax incentives for people to seek out private healthcare and therefore not be a burden on the state.

Whilst we integrated nicely, there was more and more bureaucracy to go through, and it took us the best part of 3 years to go through the whole process. We had to sit for Australian Medical Council exams (though we were allowed to work as doctors in the meantime), then had to obtain permanent residency and finally Australian citizenship. Somewhere in the process we had to repeat our English exam because the original certificate was only valid for two years! The process takes a lot of time because there are long waiting periods between each individual step.

I went to Australia with the idea of specialising in surgery. However, after some time, I started to grow a strong interest in radiology. Today I'm half way through my training and hope to be a practicing specialist in a few years. My wife's passion has always been anatomical pathology and she'll also be a pathologist very soon. It goes without saying that we still need to pass a few more exams though!

In Australia opportunities for professional development abound, with world class university hospitals and research organisations. Australians enjoy some of the best living standards in the world. With an economy that has kept growing despite turmoil in the USA and Europe, salaries are much higher than Malta - but so is the cost of living. Healthcare is second to none. Family friendly measures dominate the workplace. Meritocracy rather than connections help you succeed at work. The weather is awesome in most places, and the country itself is beautiful.

Yes, we are far away from our loved ones but we have also built new relationships with Maltese doctors and other young Maltese professionals who have recently made Australia their home. And it's great that we get to travel back to Malta every year and spend up to 5 weeks with our family and friends.

Malta is a lovely place and deep down, it's still my motherland. But once you cut the umbilical cord attaching you to the island, you'll come to love it and everything it stands for so much more.

Moving to Australia and making a new home here was hard, really hard. Would I do it again? Absolutely!

Old Wives' Tales

Drinking warm milk before going to bed will help you sleep.

Studies have shown that drinking warm milk can indeed help you sleep since it has a chemical known as tryptophan. On the other hand, foods such as cheddar, avocados and salami can keep you awake. So make sure to avoid these if you want to get a good night's sleep!

Gaming

Most people would agree that gaming is an obsession shared amongst a large percentage of boys and men alike. Females who are not into gaming, have no problem whatsoever with this 'addiction'. The problem arises when our significant other is one of these so-called "gamers" and we are unwillingly dragged into the world of gaming. Don't you just hate it when your boyfriend or husband asks you to watch him play a video game, after you've rejected his initial request to actually play with him?

There are several reasons why video games may appeal more to males than they do to females, even though research suggests that both sexes can be equally skilled at gaming.

The media is one of the factors to blame. Most games are marketed towards the male sector of society, which immediately turns away a large percentage of females. Sexy girls posing with gaming hardware as mascots at gaming conventions and on magazines provide some strong evidence that gaming is a male-dominated area surrounded with barbed wire to keep girls and women away. This is rather ironic, since males actually want females to play video games as well!

Remedying this marketing and territorial issue is not a simple task. For video games to appeal more to girls and women, video game content should not focus mainly on violence, male sports and war, but also on more gender-neutral or feminine subjects. This would seem to be an easy solution to implement, but do male gamers want to surrender their male-themed content to get the girls to play? I would say definitely not.

Non-gamers do not comprise only females, but also those males who tend to hold a neutral position towards gaming. Apart from the aforementioned media factor, the difference in perception between the two sexes probably stems from an old stereotype which points out that girls should play with dolls and boys should play video games.

With the introduction of the Nintendo Wii, the gaming industry has attracted a relatively large percentage of females, previouisly considered as non-gamers. The Playstation 3 game called Little Big Planet on is another game which appeals to both sexes alike, but the

best-selling games are still clearly male-dominated. These include Battlefield 3, Call of Duty: Modern Warfare 3 and The Elder Scrolls V: Skyrim.

Old Wives' Tales

Douching, showering, bathing or urinating can prevent pregnancy.

Douching is not an effective method of birth control as it is impossible to douche fast enough to keep sperm away from fertilising an egg. This is true even if you douche immediately after sexual intercourse. Urinating, or taking a bath or shower will not wash sperm out either.

Old Wives' Tales

Chocolate causes acne.

This is for all those chocolate lovers out there - well, who doesn't like chocolate? Chocolate does not cause acne. Acne forms when the oil glands make too much sebum, a waxy substance that, along with dead skin cells, can clog pores. Bacteria grow and irritate the blocked pores giving them the red and swollen look. Too much harsh washing can further inflame the area. It has been proven that stress is one of the major causes of acne outbreaks.

Game gender apart, more and more research is shedding light on the fact that gaming in general has several beneficial effects on the brain.

Below are some of the evidence-based research findings:

•First person shooter multiplayer networked games improve cognitive function.

•Action video gaming is capable of altering a range of visual skills and increase precise multisensory processing.

•Once corrected for publication bias, studies concerning video game violence provide no support for the hypothesis that violent video game playing is associated with higher aggression.

It has been suggested that younger surgeons acquired skills in laparoscopic surgery more rapidly than their elder colleagues, possibly because they have been exposed to video games at a young age (3 h/wk of gaming).

•Studies have shown that subjects with previous regular engagement in recreational video games tend to be more skilled at video-endoscopic surgical tasks.

•Engagement in physically simulated sport games yields benefits to an individual's cognitive and physical skills, especially those which are directly involved in the functional abilities required by older adults in everyday living.

•Motion interactive games are being used in rehabilitation therapy.

•Serious gaming is a new field in medical education, one which has the potential to become an important tool for healthcare professionals, allowing them to learn a range of clinical skills. Studies show that serious gaming is a stimulating learning method and that students are enthusiastic about its use. Serious gaming is potentially a good method for learning clinical decision-making and exploring patient interaction. Games are already being developed for teaching specific clinical skills, such fields include cardiology and orthopaedics!

Can the above alone interest any non-gamers to step into the realm of gaming? Only time can tell!

Maria Bonnici

How Comfortable Do You Feel Going To Your Doctor?

An apple a day keeps the doctor away… Or should I just not go to my doctor in the first place?

Why avoid my GP?

Many people believe that not going to your doctor is an option, blaming lack of time and energy as the two main factors. However, the worst reason of all is the belief that they can be their own GP and take care of themselves as well as any doctor could. This holds especially true for the male population worldwide.

Comparatively, it seems that women are more proactive about their health. Attitude is also a major factor: how many of us guys have led themselves to believe that some over-the-counter medication and rest is all it takes to cure our ailments? Fortunately the situation is recently improving since men are no longer only visiting their doctor as a last resort when their condition is at an advanced (and often incurable) stage, but also for the treatment of more minor ailments.

A psychological fear of the doctor, known as 'white coat hypertension'

This is a case where a patient exhibits elevated blood pressure when visiting a doctor. There can be two reasons for this taking place; either a rapid deterioration in the patient's health upon medical examination, or a determining factor to condition the patient to avoid visiting his GP as much as possible. The doctor must be skilled enough to calm this type of patient down, since high blood pressure due to an adrenalin rush caused by being at the doctor's clinic might actually mask some other underlying factor. If the blood pressure is still high after the patient is calm, then there is the likelihood of severe hypertensive disease.

What do people think?

Needless to say, underestimating a symptom can lead to aggravated and often long-term harm to one's health. Included is a vox-pop I took from a random sample of students (both medical and non-medical). Students were presented with the case description but were kept in the dark regarding the likely diagnosis. They were asked to pick a number from 1 to 10 to demonstrate the urgency and level of comfort they would feel in going to see a doctor showing the mentioned symptoms. Interesting to note is that the students with medical backgrounds chose higher numbers when compared to the non-medical students.

Case description (where sex asked: F=Females asked, M=Males and Mixed=both)	Score from 1-10, 1 showing the least desire to visit a GP and 10 the most	Average	Likely diagnosis
Your friend is overweight, avoids exercise and eats to his heart's content. Over the past two months he has noticed some strange things happening to him - cuts or sores that are slow to heal, itchy skin, increased thirst, dry mouth, and leg pain. You even notice he goes to the bathroom more frequently than anyone else in your class. **(Mixed)**	5, 5, 5, 6, 7, 7, 7, 8, 9, 9	6.8	Diabetes Type II (acquired due to lifestyle).
Two weeks after a wild night, in which you don't remember very much, you get your period. You feel relieved but bleeding seems less than normal. You feel nauseous an hour after you wake up and when travelling on the bus. You are currently going through a stressful period in your life. **(F)**	5, 6, 6, 6, 7, 7, 8, 8, 9, 9	7.1	Pregnancy. Sometimes pregnancy mimics the symptoms of menstruation due to stress. It is possible for some women to still experience menstruation albeit late and scant.
Three weeks after a live-in with friends you experience itching, especially at night, in different areas of your body. You let some time pass and you realise your skin is turning grey-blue in these areas. You remember that at the live-in you shared a towel with one of your friends because you forgot to bring your own. **(M)**	8, 8, 8, 9, 9, 9, 9, 10, 10, 10	9	Pubic Lice (also known as 'crabs'). Usually travels through sexual contact though it may also be transmitted via clothes and towels.
The January exams have just passed and you start going out with your partner again seeing you have more free time. Usually after an exam you feel lighter and happier but this time, a month after the exams, you experience fever, fatigue, loss of appetite and vomiting at times. **(F)**	7, 7, 7, 8, 8, 8, 8, 9, 9, 10	8.1	Infectious Mononucleosis (also known as 'kissing disease' – an infection transmitted via saliva)
Lately you have been experiencing repetitive headaches lasting two to three hours at a time. You notice that sudden changes in light intensity and noise around you make it worse. You buy some powerful painkillers at the pharmacist's which subdue the headaches just slightly. A few days later the pain is worse. Should you keep taking the painkillers? **(Mixed)**	4, 5, 5, 5, 6, 6, 6, 7, 7, 7	5.8	Migraine

Old Wives' Tales

I won't get pregnant if my partner pulls out before he ejaculates: coitus interruptus!

Pulling out before ejaculation, known as the withdrawal method, is not a foolproof method for contraception. Some ejaculate (fluid that contains sperm) may be released before the man actually begins to climax. In addition, some men may not have the willpower to or are able to withdraw in time.

From the results one can identify an overall pattern. Everyone was able to diagnose a migraine and all students pointed out that they would stop taking the usual painkillers and try finding stronger drugs. Nobody took the fact that they could instead contact their doctor to ask for an alternative medicine, into consideration.

Probably, the three most common reasons why people decide to ditch the doctor and treat themselves instead are the following:

1. **They believe that their problem is not serious enough to necessitate visiting the doctor and that whatever ailment they have will spontaneously resolve.** Let us take the example of someone who is showing symptoms which are typical of diabetes. If the person decides to simply wait it out and see what happens, the disease will progress and may even result in irreversible damage to the eyes (diabetic retinopathy), the kidneys (diabetic nephropathy), the nerves (diabetic neuropathy) as well as blood vessels, which delays healing and increases the likelihood of an acute coronary syndrome, as well as being at a risk of diabetes-induced complications such as diabetic ketoacidosis. A common presentation is that of a diabetic foot ulcer. The nerve damage reduces sensation in the foot and injury becomes very likely since the person is unaware of any ongoing damage (for example - a small stone in their shoes damaging the sole of the foot). The inadequate blood supply will delay healing and will also predispose the person to develop an infection of the ulcer. If caught early enough, and adequate treatment is started immediately, the ulcer may heal, if however the ulcer is neglected, or one simply takes what s/he thinks is a cure-it-all pill and waits to see what happens, the ulcer may very well grow in diameter and depth, become infected and may lead to an amputation. All of this can be very easily prevented by simply visiting your doctor, who will very probably diagnose diabetes and start you on the appropriate treatment.

2. **They believe that the medication they (or possibly another family member) had previously taken for a similar condition will also work this time.** This is very common amongst Maltese. A couple of months ago your grandmother had a respiratory tract infection which started off mildly, almost like a cold, and got worse. She visited the doctor who diagnosed her with Pneumonia, prescribed some antibiotics and luckily she got better. Now you're experiencing similar respiratory symptoms: a runny nose, a cough and maybe some low-grade fever. Instead of checking in with your doctor, you simply start taking the same antibiotics. Luckily Gracie ta' l-ispiżerija is a friend of yours and will give you the antibiotics without a prescription. You felt better after a couple of days and stopped taking the self-prescribed antibiotics. What was probably a viral infection (and hence, unresponsive to antibiotics) was unnecessarily treated with antibiotics. The fact that you got better had nothing to do with taking antibiotics - the body's immune system fought off the virus without the help of the antibiotic therapy. Many of you might be thinking - so what? No harm done right? Wrong. The antibiotic resistance rate in Malta is among the highest in Europe - not something we should be proud of. Besides the problem of resistance, there is also the problem of side-effects or drug-drug interactions. If a drug is suitable for Person X, it doesn't necessarily mean that Person Y can take the same drug, especially if they're already on some other medication. A simple visit to the doctor, or at least just a phone call, would avoid the unnecessary use of antibiotics, thus helping to reduce resistance and prevent any side-effects associated with over-use of antibiotics, such as diarrhea.

3. **They feel ashamed of visiting their doctor.** This is probably the most worrying reason why people just avoid the doctor until it is too late. Take the example of an adult male who notices a lump in the testicles. He knows that it might be something serious; he knows that your everyday cure-it-all pill will not work, yet he hesitates to visit the doctor and would

rather wait for a couple of months before finally mustering up the courage to face their doctor. What people forget is that the sooner you visit your doctor and get diagnosed, the greater the chance of having a positive prognosis. Those months (sometimes even years) that people wait before going to their doctor are months wasted not receiving treatment and are the difference between a possible Stage 1 and a Stage 2 testicular carcinoma (when the tumour has metastasised to the paraaortic and/or retroperitoneal lymph nodes).

Dr Right

Choosing the right doctor is essential. Ultimately it is your health that will benefit. Naturally such a doctor should be someone who can be trusted, respects his/her patients and maintains confidentiality. Not all doctors are the same – every individual and every doctor has his or her own character! Find the right one for you.

Replacing professional advice from a doctor with that from a friend or even stepping into the realm of self- diagnosis on the internet is unadvisable. A doctor is equipped with the medical knowledge necessary to be able to look through a patient's medical history and identify 'hidden' signs to which the patient may be oblivious thus allowing the doctor to perform the necessary examinations. It's a well known fact that the internet is opinion based and even though it may be good at providing basic information quickly, it may not always be so accurate, leading to unnecessary panic and making you imagine symptoms which are not there.

When visiting your doctor…

Check and take with you your up-to-date medical history. You may choose to be accompanied by a family member or a friend for support (the so called 'health buddy') but only if you feel comfortable. When present, these people may help you remember what your doctor is telling you.

Bear in mind that visiting your doctor of your own accord is a sign of maturity. You are now responsible for your health. Responsibilities and taking charge are all part of adulthood. Health issues are best handled by a professional but he won't come to his clients if he doesn't know who needs him!

Some points one should always keep in mind when pondering whether or not to go to the doctor are:

1. Doctors are qualified professionals. There is no reason to be ashamed to go to your doctor. It is very likely that whatever you are suffering from, your doctor has already seen it.

2. It is important to consult your doctor before starting any medication or if you believe to be suffering from any side-effects of the medication. It can be very dangerous to simply start medication without consulting your doctor first, or stop medication which was prescribed by your doctor without letting him know. If you need to be treated for a condition but the medication wasn't appropriate for you, there are always other formulations or medications which your GP may prescribe instead.

3. The earlier a condition is diagnosed and treated, the more likely one is to have a positive prognosis. Therefore one should never simply wait and see what happens.

4. You have to trust your doctor. Doctors are sworn to confidentiality and privacy, something which all doctors swear to upon taking the Hippocratic Oath - "I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know."

5. Doctors have years of studies and expertise behind them, allowing them to make a guided diagnosis and choose the best treatment. Who would you rather trust with your health - your friend who thinks he read something off the internet or an experienced adult who has specialised in this profession for years?

Old Wives' Tales

Reading in dim light will damage your eyesight.

The major consensus in ophthalmology, as outlined in a collection of educational material for patients, is that reading in dim light does not damage your eyes. Although it can cause eye strain with multiple temporary negative effects, it is unlikely to cause a permanent change of the function or structure of the eyes.

Matthew Valentino

Exchanges

Media

Leisure

Medical Education

Public Health

Reproductive Health

Human Rights and Peace

People Living With HIV/AIDS

When Acquired Immune Deficiency Syndrome, or as it was first named, Gay Related Immune deficiency (GRID) was first described in the US in 1981, no one could have predicted the extent to which this disease would affect the world and more importantly no one knew how the disease spread. Already more than 30 million people around the world have died of AIDS-related diseases. In 2010, 2.7 million people were newly infected with HIV and 1.8 million men, women and children died of AIDS-related causes. 34 million people around the world are now living with HIV with more than 10 million not receiving treatment.

Perhaps some of us have been through the experience of being diagnosed with a progressive condition and faced with such a situation we often tend to wonder how long the rest of our life is likely to be. This is probably true even if we are well aware that curative treatment is available. We all cope with news in different ways; some of us will feel angry, afraid, sad, worried, scared, lonely, fearful, or even relieved. There is no one right way to react. Many people diagnosed with HIV will feel like they have just been given a death sentence, but this is not the case.

With the advent of antiretroviral therapy people living with HIV can now lead a near normal life, as long as the appropriate regime is adhered to. It is now considered more appropriate to refer to HIV as a manageable chronic infection rather than a terminal illness, as it was regarded a few years back. Antiretrovirals improve immune function by reducing the amount of replicating viruses to a low level for as long as possible, with the aim of prolonging any damage to the immune system. The viral load can be monitored by measuring the amount of HIV RNA present in plasma. Antiretrovirals aim to lower the load, and this is enhanced through the use of combination therapy – Highly Active Anti-retroviral Therapy (HAART). One should remember that such treatment is not a cure, and people living with HIV are thus counselled on sexual and drug use behaviours. Moreover, as with all drugs, there may be side effects and these may include severe gastrointestinal symptoms.

Whilst such treatment has made it possible for people living with HIV to lead a near normal life in terms of physical health, the same cannot be said for the social and psychological aspects of their health. After more than 25 years since the start of the epidemic, stigma and discrimination amongst the general population is still high worldwide. This represents a major obstacle in decreasing the number of people affected by HIV/AIDS. It is important to remember that HIV/AIDS can only be spread through direct blood to blood contact, unprotected sex and from mother to child in pregnancy. People living with HIV/AIDS (PLWHA) come from all walks of life and the main mode of transmission will vary greatly from one country to another. Many people worry about infection in the healthcare system, perhaps because of all the rumours and myths that surround AIDS. Various stories of deliberate infection are circulated on the internet. The problems with these myths is that no matter how much we try to disprove them and expose them as deceptive, the fear has already been inculcated into the mind of the reader.

There is a big difference between keeping safe and sheer stigma. In 2009 the GfK National Opinion polls reported that 85% of people know that HIV cannot be transmitted from a kiss, but 69% still would not kiss someone who is HIV positive. If that doesn't scream stigma, I don't know what does.

Such stigma makes it difficult to decrease the number of new infections, as people living with HIV become scared to approach the healthcare system for help and treatment. Some may be fired from their jobs or refused entry into a foreign country or even

Old Wives' Tales

We use only 10 percent of our brains.

Physicians and comedians alike love to cite this one. It's sometimes erroneously credited to Albert Einstein. But MRI scans, PET scans and other imaging studies show no dormant areas of the brain and even viewing individual neurons or cells reveals no inactive areas. Metabolic studies of how brain cells process chemicals show no non-functioning areas!

rejected by friends and family. It is up to us to make the difference. It is true that policy and law can make PLWHA more aware of their rights and can empower them. However, most fear is rooted in a lack of knowledge and this can be tackled through education and advocacy.

Whilst it is impossible for me to portray how it must feel to receive the news of being HIV positive, to convey the hardship of rejection and the patience of adhering to a strict drug regime whilst trying to lead a normal life and build relationships like everyone else; I hope that through these words I have manage to instil a sense of interest and empathy.

"We can fight stigma. Enlightened laws and policies are key. But it begins with openness, the courage to speak out. Schools should teach respect and understanding. Religious leaders should preach tolerance. The media should condemn prejudice and use its influence to advance social change, from securing legal protections to ensuring access to health care."

Ban Ki-moon, Secretary-General of the United Nation

Keith Pace

We men, we're a lucky bunch. If we're in a good mood one day, we're very likely to be in a good mood for the next couple of days or so (well, unless something terribly wrong happens). Women on the other hand, that's a different story. They're in a good mood one second, and the next second, for no apparent reason at all, they're a completely different person. The majority of us men, not knowing what it means to have PMS, just joke around and blame these mood swings on PMS (even though most of us don't know exactly what PMS is and what it entails). So, what exactly is PMS?

Premenstrual syndrome (in short, PMS) is a term used to describe a set of symptoms which some women (that's right, not all women suffer from PMS) may experience up to 14 days prior to their menstruation. These symptoms are extremely irregular and may vary from month to month in the same person and sometimes, they may not present at all. Usually the symptoms can be both physical, such as back pain and lethargy and psychological, such as irritability and mood swings. Some of the common symptoms include:

- Bloating
- Change in appetite (often accompanied with food cravings)
- Constipation
- Depression
- Difficulty concentrating
- Gaining weight
- Headaches
- Joint pain
- Tender and swollen breasts

But what actually causes PMS? This is a question which has yet to be answered. Although several theories have been suggested, none have managed to deal with the question of why symptoms are so varied and irregular and why their severity is so diverse, with some women having severe symptoms, while others have no symptoms at all. The main theory is that PMS is caused by a number of changes in the neurochemical signalling of the brain, possibly caused by an interaction between sex hormones (such as oestrogen) and neurotransmitters in the brain.

This theory is based on the fact that sex hormones have an influence on all of the body and secondly on the fact that levels of said hormones tend to differ during the different stages of a menstrual cycle.

Levels of oestrogen in females start rising after menstruation and peak around mid-cycle (ovulation). Levels will then take a sudden drop, only to gradually rise and fall once more before menstruation. Oestrogen is known to cause fluid retention and it also affects the central nervous system. Therefore, the true cause of PMS could in fact be oestrogen, but far more research needs to be carried out before this can be fully confirmed.

Then if this is so, is there nothing women can do to reduce the symptoms of PMS? To date, there is no widely-successful and accepted treatment which has scientific backing and proof of its effectiveness. A number of clinical trials have suggested that the fruit of the chasteberry tree may be helpful to alleviate some of the symptoms associated with PMS. The theory is that this fruit works on the pituitary (a part of the brain responsible for the production of several hormones) and alters the levels of certain hormones, but its efficacy is yet to be proven. Other trials have shown that vitamin supplementation, in particular with vitamin B6, vitamin E (ladies, eat your fruit and veg!), calcium and magnesium may also reduce the symptoms of PMS, but once again, more trials need to be conducted to actually prove their usefulness. A slightly more successful treatment employed is Evening Primrose oil. This contains gamma-linolenic acid which, for reasons which are still not fully understood, seems to reduce the pains associated with PMS.

Old Wives' Tales

You don't need a condom for oral sex.

Another untrue and very dangerous myth. Some sexually transmitted diseases can be transmitted through oral sex. Condoms must be used during each and every sexual encounter; vaginal, anal and oral.

Generally, the following tips are given to women who are suffering from symptoms of PMS:

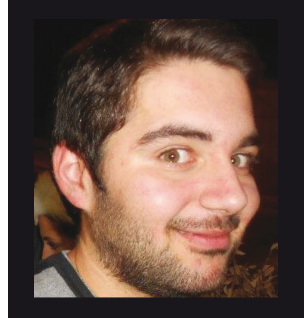
- Eating complex carbohydrates (such as whole grains and whole-grain breads, pasta and cereals), fibre and protein is good for you. Sugar and fat intake has to be kept down.
- Try to reduce the amount of salt you eat for the last few days before your period. This will reduce bloating and fluid retention.
- Lower your caffeine intake (not just coffee, all sources of caffeine - even tea has caffeine!). This will help you feel less tense and irritable and will ease breast soreness.
- Stop drinking alcohol (well at least temporarily). Alcohol consumption before your period can make you feel even more depressed.
- Instead of eating 3 large meals a day, try eating up to 6 small meals.
- Exercise. Work for about 30 minutes, 4 to 6 times a week.
- Sleeping is important, so get plenty of it - about 8 hours a night.
- Keep to a regular schedule of meals, bedtime and exercise.
- If you have upcoming stressful events try to schedule them for the week after your period.

In more severe cases other non-PMS-specific medications are given to the patient. These medications include diuretics, analgesics (pain killers) and antidepressants. Diuretics work by increasing the urinary outflow, thus treating symptoms of swelling by reducing fluid retention. Pain killers are given to those patients in whom PMS presents itself with pain, such as headaches and joint pain. Antidepressants are occasionally given to women in whom PMS presents with mood disorders. Antidepressants work by altering the levels of certain chemicals (such as opioids and serotonin) in the brain which are affected by ovarian hormones.

For the ladies reading this: before starting any treatment it is always important to consult your doctor. Just because a particular treatment worked for a friend of yours, it doesn't necessarily mean that the treatment is safe or good for you. It's always better to get a professional opinion from your G.P ;)

Luckily however, PMS is normally pretty mild and symptoms are not too severe. One important thing to keep in mind is that PMS is a REAL thing and not some excuse made up by women to allow them to act moody and get away with it. So guys, next time a girl starts acting moody and weird, keep in mind that PMS can be quite a burden, so just have some patience and try to show some empathy.

Daniele LaurettaAgius



The Malta 2011 Resuscitation Symposium

In October 2011, a group of physicians, cardiologists, anaesthesiologists, business representatives, researchers and medical students from across Europe (and beyond) met in Malta to share scientific knowledge on matters concerning resuscitation.

The venue was the Mediterranean Conference Centre, Valletta. The conference, organised by the ERC, spanned over two days with an evening dinner for all the guests and staff.

119 papers were presented as oral papers or as posters during the two-day Symposium, which focused on the practical implementation of the science shared in last year's Congress in Porto, Portugal.

I had the opportunity to work as a volunteer member of staff, along with other students of Medicine & Surgery, Pharmacy and Nursing from the University of Malta.

What did you learn?

Being positioned at the Registration & Help Desk, I could appreciate just how well organised important events like these are and how everything, down to the printers churning out name tags, has to be in excellent working order. However, no matter how many times you check and double check, you can never let your guard down and allow yourself to be complacent. Things can, and will, go wrong unexpectedly and it is good to have a plan B, C, and D up your sleeve. When you don't have any solutions, the most important skill in these circumstances is the ability to improvise.

Volunteering was an opportunity for us to recognise that in any major conference or symposium attention to detail is of utmost importance, with the layout of the floor, the timing and the various roles that the staff fulfil, being meticulously planned out to meet the needs of the participants, business representatives and staff. Safety and security are also taken very seriously. Everyone is required to wear a tag with a barcode read by a computerised reader manned by other volunteers at the entrance. The luggage was stored with a numeric code to ensure that only staff could take bags from the luggage room.

Even the types of food prepared catered for the multicultural background of the participants, since some cultures forbid the consumption of certain foods or require that they are prepared in a specific way.

I encourage fellow medical students to take up any possible opportunity to volunteer to work for such events, especially large organisations like the ERC, because they provide an understanding of their organisation and allow you to appreciate the sharing process of scienc

What is the ERC?

The European Resuscitation Council is dedicated to preserving human life by making high quality resuscitation available to all. The ERC produces resuscitation guidelines, organises scientific congresses and promotes research into matters relevant to resuscitation.

The next major event by the ERC is the Resuscitation Conference which will take place in Vienna in October 2012.

The Malta Resuscitation Council is affiliated to the European Resuscitation Council.

Courses organised by the MRC include the CPR/AED Provider (previously known as BLS/AED) and instructor courses, ILS, ALS provider, European Paediatric Life Support (EPLS) provider, European Trauma Course and Generic Instructor course. The CPR/AED provider course is compulsory for medical students before they start FY1 and it is usually done during the last few months of 5th year (unless they would have done it before and their certification is still valid). The certificate is valid for 3 years and it is a prerequisite for the ILS which is done during the 1st FY and for the ALS which needs to be done before the end of the FY programme.

Where can I get more info?

Further information about requirements of Life Support courses for doctors during the foundation program is available at the Postgraduate Centre in Mater Dei hospital.

The website of the Malta Resuscitation Council:
http://www.resus.org.mt/

The ERC website:
https://www.erc.edu/

Old Wives' Tales

Shaved hair grows back faster, coarser and darker.

No, shaved hair does not grow faster, coarser and darker.
When hair first emerges after being shaved, it grows with a blunt edge on top. Over time, the blunt edge gets worn so it may seem thicker than it actually is. Hair that's just emerging can be darker too, because it hasn't been bleached by the sun.

Chris Camilleri

Of Sweat and Sexual Attraction

When it comes to understanding the complexity of human sexual attraction, one cannot point out a single, predominant mechanism with which all aspects of sexuality may be explained.

However, one maxim that holds true for many non-human, mammalian species is that females tend to select their male partners based on which choice would produce the strongest possible offspring. In the case of humans, this has been in part distorted by the fact that the natural and social environments we live in and the natural and social environments that our minds and bodies evolved around are two very different things. Nevertheless many of these mechanisms for choosing the best possible partner remain integral to human sexuality. The role of smell in human attraction was previously underestimated by physiologists; however, recent studies elucidated the fact that it still remains essential to human sexuality, even if not consciously acknowledged. The vomeronasal organ (VNO) is located on the nasal septum, about one inch up, and consists of a microscopic pair of pits dedicated to pheromone reception. VNO receptors fire intensely when stimulated with the right ligands, yet subjects report nothing more than a vague sense of well-being. This points to the fact that unconscious signals may influence sexual preferences.

Apocrine glands in the skin secrete a number of scented molecules that are notorious for inducing sexual behaviour in certain mammalian species. Androsterone is one of these scented molecules. Interestingly, in a world-wide smell survey, androsterone was rated second to last in order of appeal (with sulphur compounds such as those found in flatus receiving the worst rating!) A remarkable discovery was that female perception of androsterone changes considerably depending upon which stage of the menstrual cycle they are in.

The Immune System and Sexual Preference?

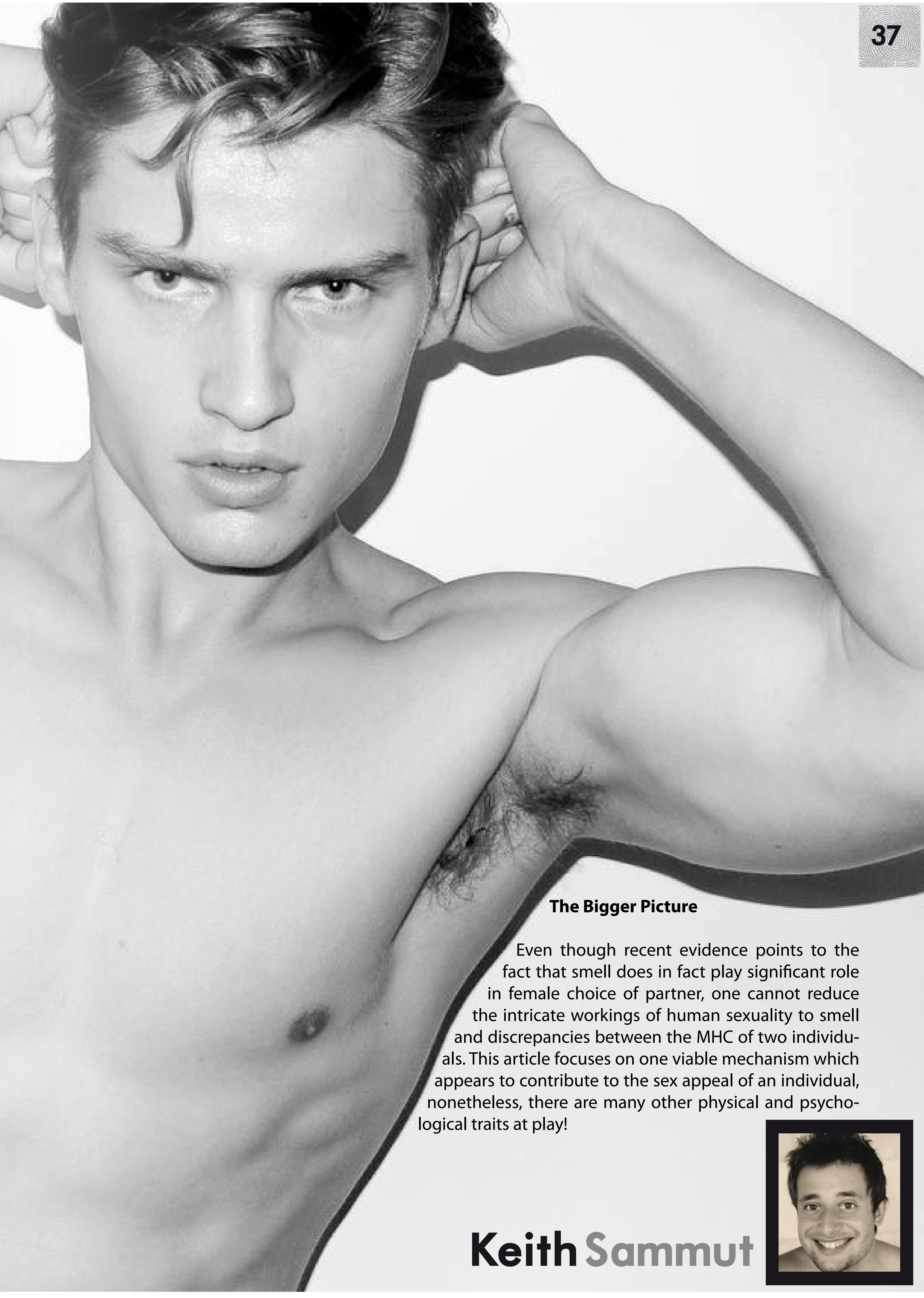
The Major Histocompatibility Complex (MHC) is a highly polymorphic segment of our DNA located on chromosome 6 and codes for a myriad of proteins that allow our immune system to distinguish between self and non-self antigens. Non-self antigens are potentially harmful and are hence selectively eliminated by the immune system. The structure of the proteins produced, in effect infers 'natural resistance' to certain diseases. Inheritance of MHC is co-dominant and therefore having a father resistant to 'Disease A' and a mother resistant to 'Disease B' would produce an offspring that is resistant to both 'Disease A' and 'Disease B'.

It is of no surprise, therefore, that in experiments, female mice seemed to mate preferentially with males whose MHC was most dissimilar to theirs. Yet, how could the female distinguish between different immune profiles? It so happens that mice excrete a number of scented immune by-products, the scent of which is subjectively pleasing or repulsive to the potential mate. Remarkably, humans were able to distinguish between MHC-similar and MHC-dissimilar mice simply by sampling a whiff of their fur or urine.

So how would this apply to humans? A team of scientists from the University of Bern, Switzerland, investigated the effect of apocrine secretions on sex appeal. Approximately 100 university students were recruited for the study. The male subjects were deemed to be healthy and each given a plain, cotton t-shirt to wear as they slept in separate but similar rooms at night, for 2 consecutive nights. They were instructed to avoid using scented soaps, deodorants and perfumes; eating spicy foods; close personal contact; smoking and alcohol ingestion. The female subjects were asked to rate the scent of the shirts in terms of appeal and intensity.

It was found that overall, women found the scent of men whose MHC differed from theirs more appealing. These 'appealing scents' stirred up memories of ex-partners, whereas 'unappealing scents' were compared to those of male blood relatives.

There was an overall negative correlation between the intensity of the scent and how appealing the female subjects found it to be. This is of no surprise, as the body augments the concentration of these scented by-products in apocrine secretions in a multitude of different illnesses, ranging from pathogenic infection to psychiatric disorders such as anxiety and schizophrenia, making body odour a useful indicator of general health.



The Bigger Picture

Even though recent evidence points to the fact that smell does in fact play significant role in female choice of partner, one cannot reduce the intricate workings of human sexuality to smell and discrepancies between the MHC of two individuals. This article focuses on one viable mechanism which appears to contribute to the sex appeal of an individual, nonetheless, there are many other physical and psychological traits at play!

Keith Sammut

"...what you see is not necessarily what you get. Nor, in some cases, is seeing believing."
(Seckel, 2006)

For a long time I have been captivated by the mysteries of visual perception. My interests have been kindled mainly by the illusionary work of some great artists, including M. C. Escher, Salvador Dalí, Sandro Del-Prete and Jos De May.

Vision comes to us so easily that we tend to take it for granted. The visual system is very efficient in constructing accurate representations of the real world through very complex brain processes. Comparing the visual system to capturing a picture on a camera may seem as a useful analogy. However, they are two dissimilar processes because a camera only records incoming information, whereas the brain interprets it. The eye is simply responsible for capturing light. Every time a person views an illustration, a 2D image is generated on the photosensitive retina by means of the light waves entering the eye. This triggers a visual stimulus, which leads to a process inside one's head to finally form a concept depending on his/her interpretation. Only part of what is perceived derives straight from our visual system, whilst the rest is the result of our interpretation. This is called visual perception.

At times we might think that we are seeing things the way they are, when in fact they are illusions. An illusion arises when there is deficient detail or contradictory information in an image. Although our brain is ingrained to efficiently and effectively perceive the reality of the external world, we cannot help being deceived by the mesmerising phenomenon of visual illusion. Thus, perception is not indefinitely perfect, and at times allows a static image on the retina to be interpreted in various ways. The Necker cube illusion is a typical example (Figure 1). Despite the image on the retina remaining constant, the brain shifts between two possible interpretations. It is almost impossible to view both versions concurrently due to perceptual limitations. This demonstrates that the way in which an image is perceived depends substantially on its interpretation and not only on the way it is projected onto the retina. A more complex and aesthetically pleasing example of interpreting an illustration in different ways is M. C. Escher's "Convex and Concave" lithograph (Figure 2).

The fact that illusions 'trick us' has led several distinguished scientists, including Francis Crick and Marvin Minsky, to classify them as mistakes and failures of the visual system. However, one must note that the events involved in 'normal' vision are exactly the same as those responsible for the occurrence of illusions. This leads us to the realisation that in order to comprehend and appreciate illusions, we must understand the processes involved in 'normal' vision. Moreover, illusions also help us reveal concepts about 'normal' visual processing and mechanisms of perception. Accordingly, if illusions are not faults, then what are they precisely?

In every day life, these 'illusions' serve beneficial in that they help in good adaptations of our visual system, which corrects for the spatially ambiguous visual information presented by the world. If you look at an object and walk around it, the image changes in shape, size, and illumination, but it is perceived throughout as being the same object. Therefore, this normally allows our perception of the world to be consistent and stable, as long as there is sufficient incoming information. Without this adaptation, the world would become unstable and confusing. In fact, people who recover from blindness after many years face problems in interpreting our world.

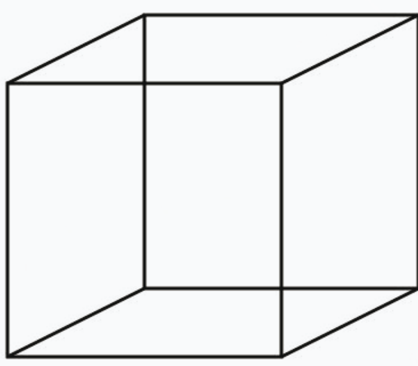
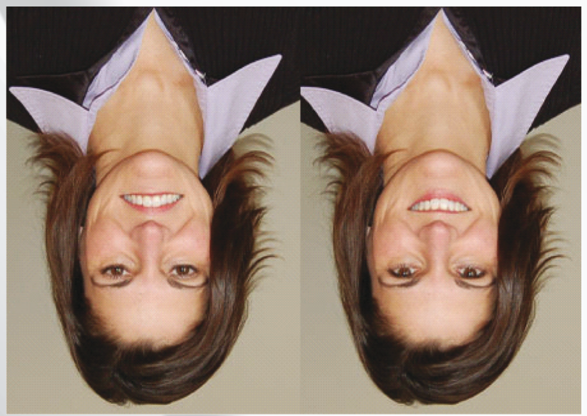


Figure 1: Necker Cube
(Louis Albert Necker, 1832)

If you fixate on this cube it will spontaneously reverse in depth.

It was reported that a person who recovered from a 43 year period of blindness (by stem cell procedure) cannot readily distinguish between the first (normal) face and the second face. the reason for this remains a mystery



Another regular daily task with an extensive impact on our social behaviour involves facial recognition and the extraction of information from a person's facial expression. A variety of perceptual tasks are needed to perform this effectively. These help us recognise different individuals, their mood, gender, age, etc. This is remarkable, since we can recognise numerous faces despite the generally minor variations in the basic visual pattern. Interesting perceptual effects occur when certain areas of the face are inverted as illustrated in Figure 3.

Apart from helping us understand further the mechanisms of visual processing, studying optical illusions plays a role in comprehending certain medical conditions. These include epileptic aura (perceptual disturbance), organic psychoses, and brainstem injury with resultant visual hallucinations. Some clinical tests also have an illusory basis, namely the Rorschach test, used in psychological evaluation. The latter is specifically based on the fact that the brain continuously searches for familiar patterns when presented with a haphazard structure (pareidolia).

Given my background as a radiographer I could not help mention how visual perception affects the interpretation of diagnostic medical images. When analysing such an image one must be aware of certain common mistakes that might cause the brain to create false visual patterns, as these would result in an erroneous diagnosis. For example, the Mach effect is a recognised illusion giving rise to misinterpretations, such that normal anatomy may be reported as pathological (e.g. fractured). A Mach band refers to light or dark stripes perceived at the boundary between two regions having different grey scale levels.

No matter who you are, whether young or old, whether educated, wise, cultured or creative, you will continually be deceived by visual illusions. Even though we have insights about the art and science of visual perception and illusions, much more remains to be discovered. Hopefully, this discussion will inspire you to ponder upon the numerous interesting issues and questions, and join in the quest for knowledge on the human brain, the utmost mystery.

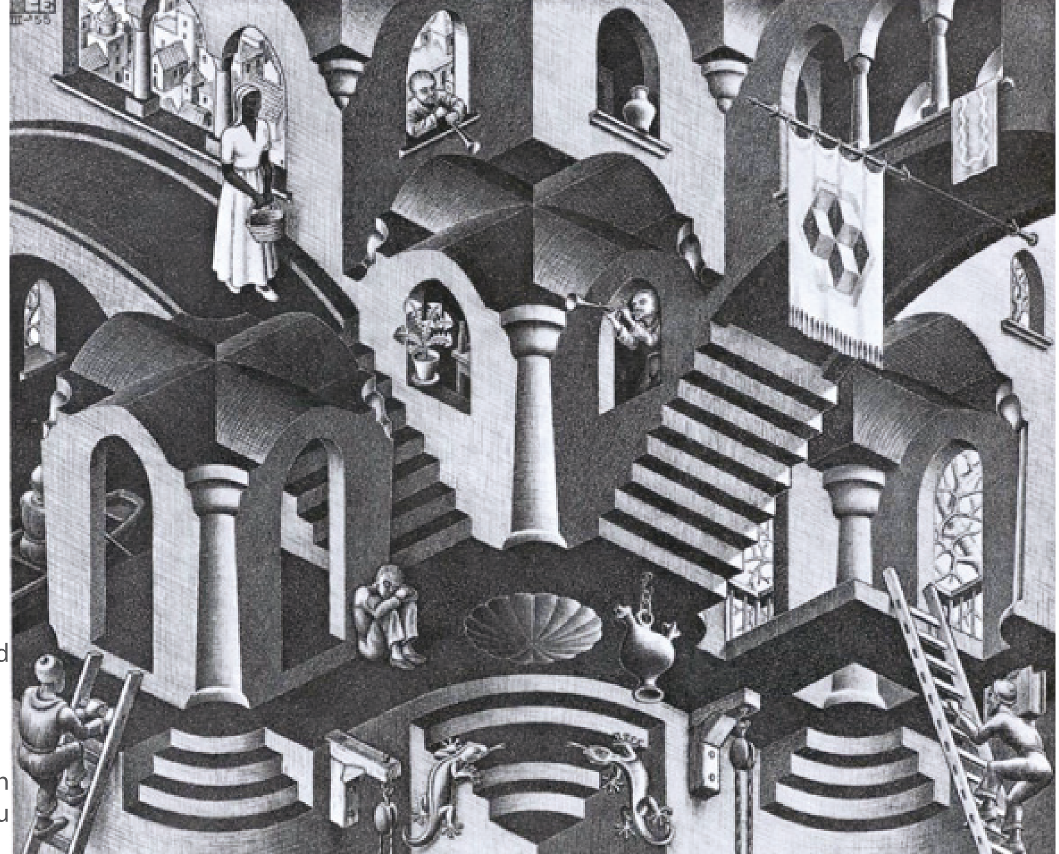


Figure 2 (right): Convex and Concave (M.C. Escher, 1955)

What do you see when you look at this illustration? Are the 'columns' concave or convex? Is the central 'shell-shaped' ornament outcurved or indented, and is it standing on a floor or hanging down from a ceiling? Do you see a bridge or an arch? Now try to see this illustration upside down and notice how your perception changes.

Figure 3 (opposite): Inverted Face Illusion
(Robert Kurson, 2007)

The faces in the image both look relatively normal, until you turn the picture upside down.

I would like to thank Ms. Liza Caruana-Finkel B.Sc. (Hons.) Radiography for the rousing discussions on the subject which helped to inspire this article.

Gilbert Gravino

A Spoonful of Sugar

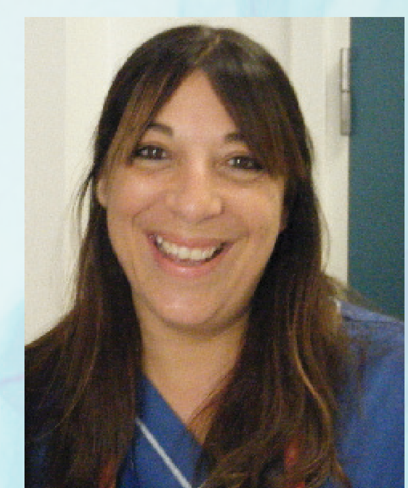
An Interview With Ms Moira Grixti

What inspired you to become a nurse and help patients in the diabetic clinic?

My inspiration came a long time agowhen I was a young girl ofaround 6-7 years. In those days we use to watch a television programme about doctors called Marcus Welby which I use to love and which further encouraged me to take up nursing. Moreover, at home when anything ever happened to one of my siblings I was always the first to help out, everyone else was always scared to treat anybody and see blood. Initially when I started the course and began to see patients in the wards and on a regular basis it was quite a culture shock for me. I was still very young when I finished 6th form and after the protection and security I had from school it was very different to what I was expecting or what I had seen on television but I still loved it! My interest in diabetes came later when I started working in the diabetes clinic where I was taking care of both medical and diabetes patients. I was assigned to professor Azzopardi and had been promoted to Deputy Nursing Officer (NO) and the person who was in charge at the time was transferred and I was given the post of managing the department. I was required to continue training myself on diabetes. I had already been working with diabetes patients for over 6 yearsand my interest on the subject started to grow.

What does your role entail?

Currently we are only two diabetes specialists and our role is very vast. Besides focusing on patient education we are here to offer support more than anything. Apart from being active in the clinic I am also a member of the Malta Diabetes Association where we also focus on patient education and support. The education on diabetes can be divided into 2: group education sessions and individual education session. Group education session are organised monthly for patients with type II diabetes and multiple sessions are given in the 4 week period with each session focusing on a different aspect of the condition. On the other hand individual education is for patients and relatives of type I diabetes sufferers. Since

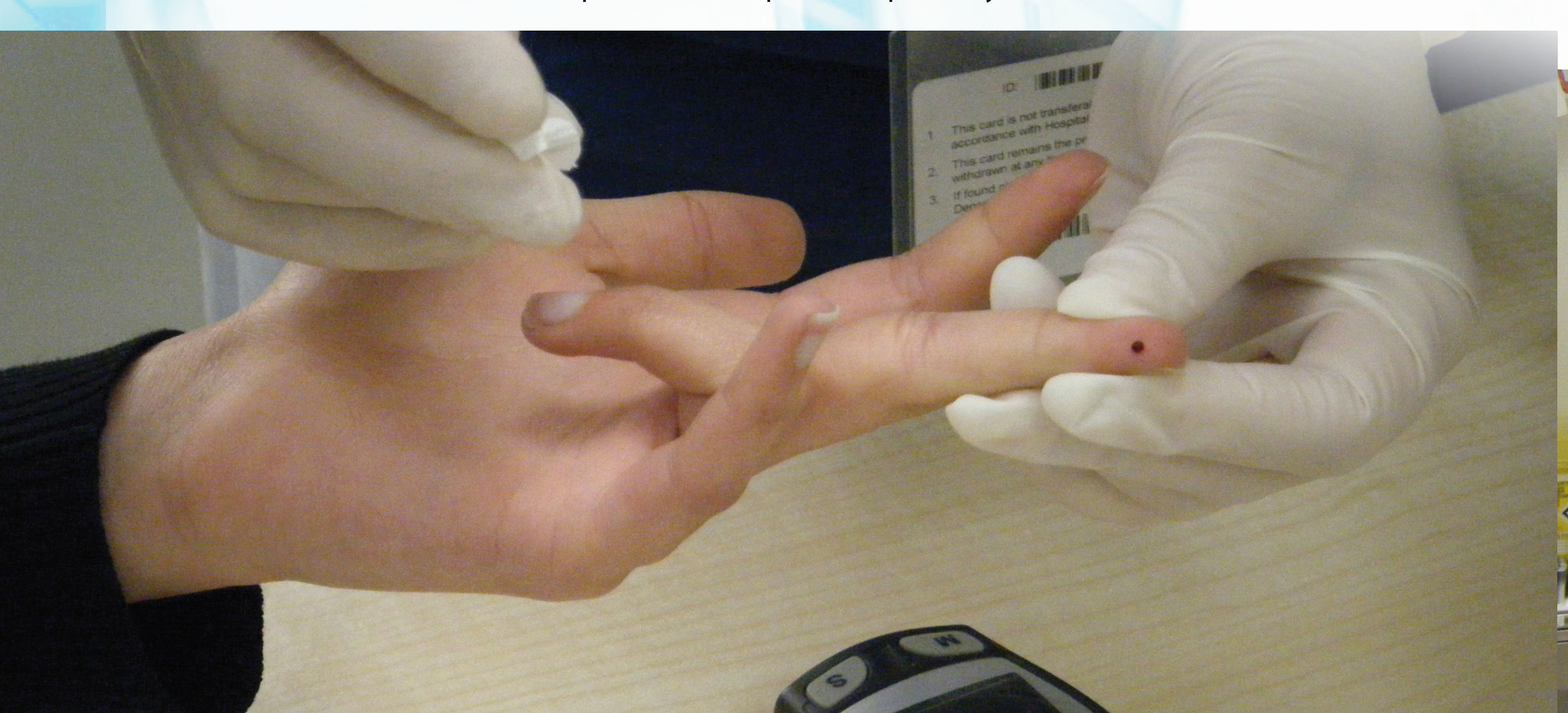


patients of the condition may even include babies training requires more time. Initially when the child is diagnosed it is a shock for the parents and although some training is given in hospital there is too much information for them to process at once so it is important that they have contact numbers so that if they have any queries they can call. We also do staff training in hospital and the community in order to give updates on diabetes management. Teaching students and giving tutorials is also part of my job and I try to teach them the management and practical scenarios to make them take an interest in the subject. Furthermore, I am involved in anstandard operational procedure (SOP) working group together with Dr.Vassallo and a clinical pharmacist Ms.Ruth Theuma. Togetherwe work on new procedures and standardise the ones already being implemented such as the proper storage of glucose monitors.

As a nurse specialist I am also involved in a lot of adjudications regarding anything that has to do with diabetes like the blood glucose meters. Moreover, I am also a member of the Point of Care Testing (POCT)committee; the blood glucose meter can be given as an example of a point of care. Apart from the above I am also involved in the organisation of summer camp for children with type I diabetes. This usually takes place in August and has an attendance of around 40 childrenor more which range from ages 5-18/20.This event is a 3 day event organised by the Malta Diabetes Association, the Diabetes Department and also the Ministry of Health and Community Care. This camp is educational where the children learn many matters about diabetes and even learn how to self-inject, even 5 year olds! Diabetes is a family issue and siblings like brothers and sisters also come along to give support and are also taught how to give insulin injections. The child learns various matters including: how to recognise and manage hypoglycaemia, what to do before exercising, monitoring and its importance before, during and after exercise. It always amazes me how much the children learn to look out for each other especially the young ones. These 3 days the children spend at camp are all done without parents being present so it can become very tiring for us because we spend 3 days awake monitoring the children and making sure that everything is running smoothly. However, it gives us a lot of satisfaction. We are now also trying to organise a mid-termcamp in November which will be focused entirely on sports because unfortunately a lot of the children who suffer from diabetes do not practice any sport and it is an essential part of tackling their condition. Lastly, my role involves keeping myself informed about the condition and attending on-going training seminars to keep myself up to date.

What are some of the challenges you encounter on a daily basis?

Right now the biggest problem we are facing is room availability because we do not have our own offices. However, our offices will soon be moving outside of the department so each of us will have our own room. The problem with this is that we cannot always speak to our patients privately because the offices we currently have are shared with people always moving in and out so sometimes we would need to ask the patients them to come at a later date. Moreover, the workload has increase since the number of patients diagnosed with diabetes has increased, we give all the time we have available and more to patient education but we would benefit more if we had more nurses with a diabetes specialisation. Since we are only a few it is difficult to retrain the staffin both Malta and Gozo. We need to be able to branch out to inform the staff and general public but it is not always easy for 2 people to take on all this work and to organise education sessions with clinics and also different hospitals. I have already covered Boffa Hospital and the Mtarfa home but we still need to continue to spread the message. I get a lot of help from our pharmacist who worked a lot with me on the insulin supplement guideline.Up until a few years ago there were different methods of managing insulin supplements but with these new perioperative guidelines the staff will know exactly what they are required to do.



What are some of the rewarding aspects of your profession?

It is very rewarding when you see that patients appreciate your work and all that you are doing for them. Showing them that you are present andthat you are giving them your time makes them appreciate you even more. You also get a great satisfaction when you see their sense of empowerment following the educational sessions we perform. Building a relationship with your patients it is not just about teaching them how to handle the condition and sending them home you need to build a relationship based on trust with your patient. Knowing that they trust you and are not afraid to speak to you is the greatest satisfaction of all. Moreover, I believe in rewarding children when they manage their condition and I reward them with a certificate of bravery when they manage to take their first injection without crying.

What is the most inspiring thing a patient has ever told you?

"We don't know what we would do without you."

What are some of the common misconceptions that the general public have on diabetes?

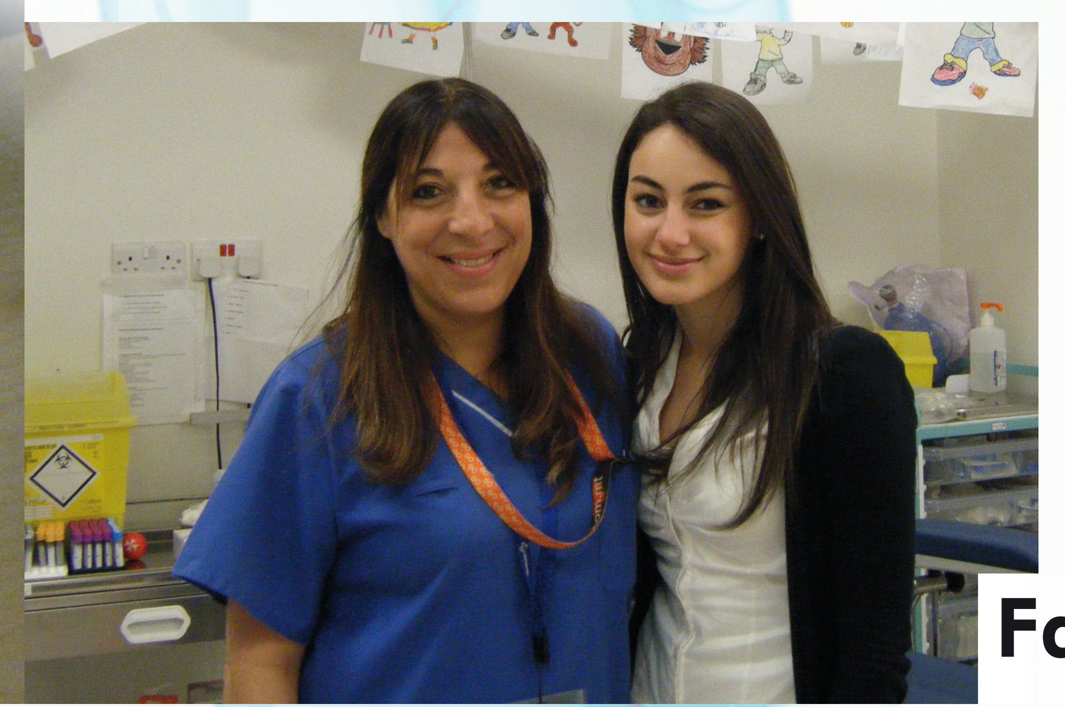
Some people think that because they have diabetes they cannot eat anymore. Moreover, since diabetes is hereditary some children have asked me if it is infectious and if it can be contracted like aviral infection. People must also be aware that just because they have the condition does not necessarily mean that they are going to go blind or that they will require amputations with the proper care all complications can be avoided. Lastly, diabetes can happen to anyone at any time it is not a condition of the elderly as many people think.

As future health professionals what advice can you give us about tackling diabetic patients and their families?

Very soon you will qualify and it is important that you know everything that there is to know about diabetes. Patients that come to you will expect you to know everything and one of the biggest problems we are facing is that sometimes unfortunately consultants give conflicting information to the patient. Although we all have the same goal to treat the patient and educate them to manage their condition we may confuse them if we do not give the proper information. Diabetes is a condition that involves the families and it is important that you explain treatment side-effects and even timings to the relatives as well. Lastly, it is very important that you refer patients, if they need education refer them to us for lectures, if they need individual education on how to take care of their feet refer them to the podiatrists. As a GP you can also refer them to a peripheral clinic. You must also ensure that patients receivepandoscopy screening from the early stagesand follow-up should be done regularly.

How do you see the future of the diabetic clinic in Malta?

The workload at the clinic is definitely going to increase so we need more specialists to be able to train more nurses and doctors. We have all the services at the clinic but now we need to be able to branch out. Another service that we will hopefully be able to offer our patients in the future is that of insulin pumps. I hope that in the future our type I diabetics will be able to benefit from this service because it will greatly increase theirhealth and standard of living.



Fabrizia Cassar

The C-Peptide

Diabetes mellitus (DM) is not a single disease but it is rather a syndrome. This is because it incorporates a group of metabolic diseases, the two types being T1DM and T2DM. Essentially, what gives rise to this syndrome is aberrant blood glucose homeostasis. This can happen either due to lack or insufficiency of insulin (T1DM) or due to insulin resistance coupled with decreased insulin secretion by pancreatic beta cells (T2DM). Insulin is a polypeptide hormone that goes through a number of steps before the biologically active hormone is released by the β-cells. The final process which gives rise to insulin requires the removal of C-peptide by a proteolytic enzyme. The C-peptide (refer to Figure 1 below) joins the A and B chains which constitute the proinsulin (Shafqat et al., 2006) and current research is revealing the multiple benefits of this connecting peptide.

With regards to T1DM, clinical trials have been carried out using molecules such as the heat shock protein 60 (hsp60) peptide 277 which has been found to inhibit the reduction in C-peptide secretion in T1DM patients and hence maintaining insulin secretion from the pancreas (Eldor R., Kassem S. and Raz I., 2009). Such a mechanism interferes with the autoimmune process that characterises T1DM (Tuccinardi et al., 2011). In fact, patients who were given hsp 60 peptide 277 in clinical trials exhibited a significant preservation in the number of beta pancreatic cells. Therefore such molecules will hopefully be the bases of future therapy that targets the cause of this condition rather than the insulin deficiency which is a consequence of the autoimmune attack on the beta pancreatic cells.

In Type 2 diabetes mellitus patients who are considered to be eligible for bariatric surgery, C-peptide has been found to be a useful marker to indicate whether the patient is expected to benefit from the surgical intervention. In a study carried out with patients who had clinically severe obesity, 58% of them had high levels of C-peptide (>4 ng/mL) while 1.0% had lower C-peptide levels (<1.0 ng/mL) preoperatively (Lee W J et al, 2011). The high levels of C-peptide in T2DM signifies that this condition essentially stems from insulin resistance i.e. insulin is still present in the blood of such patients but it fails to fully carry out its normal physiologic functions associated with glucose homeostasis.

71.7% of the patients in the aforementioned study underwent gastric bypass procedures for their morbid obesity and the remaining were managed by restrictive-type procedures. In the second year after the surgery, 78.0% of the operated patients had a remission of their T2DM. It was found that this category of patients had comparatively higher pre-operative C-peptide levels than the remaining 22.0% (Refer to Table 1 below). Bariatric surgery for diabetic patients with clinically severe obesity (BMI >40kg/m2) has several complications (Frachetti and Goldfien, 2009) including obstructive problems, the risk of cholelithiasis and the possibility of gastrointestinal bleeding. Recently, postprandial hyperinsulinemic hypoglycaemia (characterised by episodes of palpitations, sweating and tremors 1-4 hours after a meal due to low blood glucose levels and high insulin and C-peptide level) has also been recognised as a complication of such surgery. Given the risks of such surgery, gastric bypass procedures are recommended for obesity-related T2DM patients who have elevated C-peptide levels.

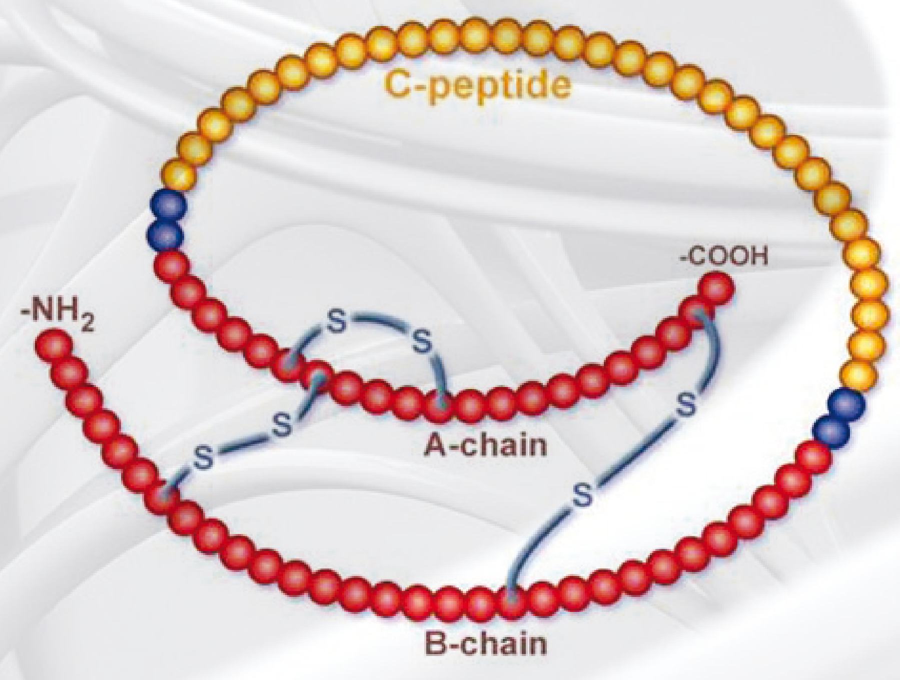


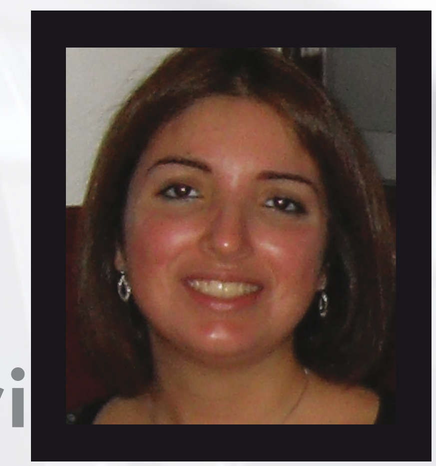
Table 1:
T2DM remission rate according to various preoperative C-peptide levels

C-peptide ng/ml	<3	3–6	>6	*p* value
All patients	55.3% (26/47)	82.0% (87/106)	90.3% (47/52)	<0.001*
Bypass group	78.2% (18/23)	92.9% (79/85)	94.8% (37/39)	0.056
Restrictive group	33.3% (8/24)	38.0% (8/21)	76.9% (10/13)	0.029*

Adapted from: Lee W J et al. (2011) C-peptide predicts the Remission of Type 2 Diabetes After Bariatric Surgery. Obes Surg 2011 Dec

Research has shown that C-peptide can no longer be considered as a passive molecule. On a molecular level this connecting peptide helps to counteract diabetic complications such as inflammation, neuropathies, perturbed blood flow and inadequate utilisation of glucose. These physiological dysfunctions often present as decreased nerve regeneration and diminished peripheral pulses in the lower limbs (Nordquist L. and Johansson M., 2008). As has been discussed above, C-peptide is a promising target for therapeutic purposes in T1DM. Moreover, according to recent studies routine testing of C-peptide levels is encouraged in order to be able to devise appropriate management plans for T2DM patients.

Kirsten Schembri

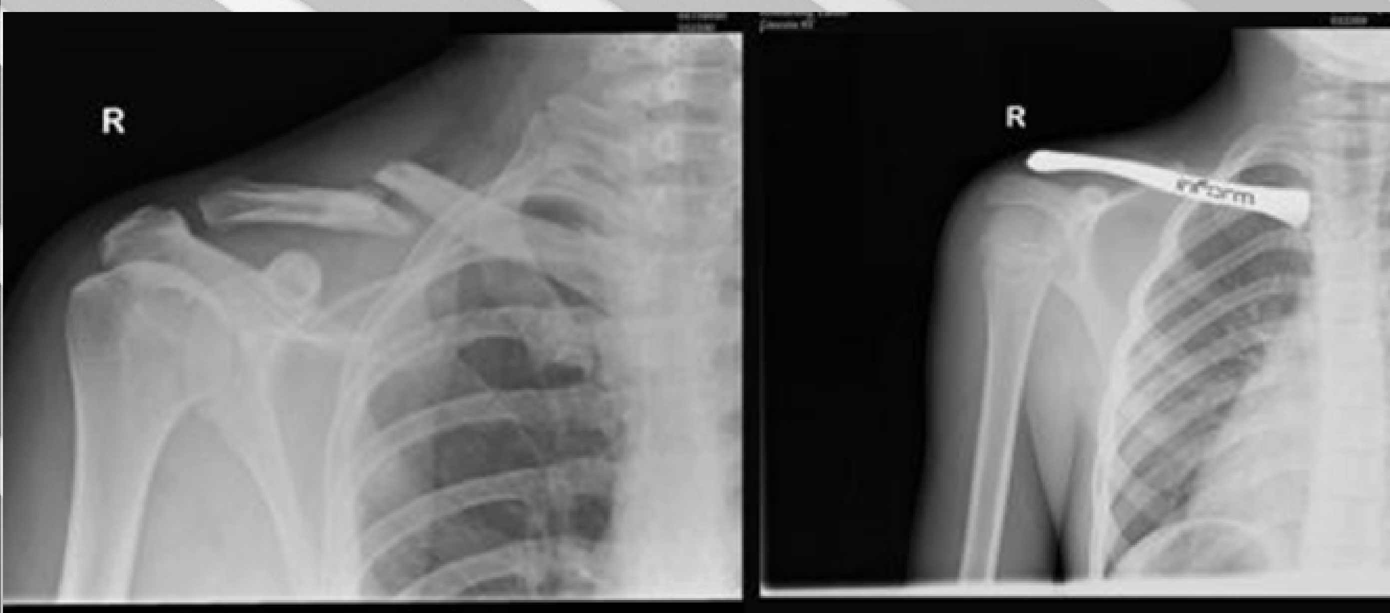


The Medical Science Behind Sports Injuries

Despite the numerous benefits that exercise has to offer, sports and injuries go hand in hand. Even for elite athletes who have performed at top-level events for several years, injuries are part of the package. Below are four common types of injuries that happened to some of the best performers in modern sports.

Fracture of the clavicle

A common injury is fracture of the collar bone which can be fixed by surgery or left to mend on its own. This type of fracture can be a result of a direct blow, fall on an outstretched arm or fall onto the tip of the shoulder. The latter is a common cause of injury found in cyclists, as has happened to Lance Armstrong on the 23rd of March 2009 during the Castilla y Leon stage race in Spain. Lance Armstrong fractured the middle third of his right clavicle when he fell off his bike as the cyclists reached a bottle-neck approximately twenty kilometres from the finish line. Such a fracture can lead to injury to the underlying part of the subclavian vein and artery, the brachial plexus. Injury to the axillary artery has also been reported. In such a fracture, the proximal part is usually elevated by the traction of the sternocleidomastoid muscle and the distal part is pulled medially and forward by the strong adductor muscles of the shoulder joint especially the pectoralis major. A complication which might arise during the union of the clavicle is involvement of the supraclavicular nerve in callus formation. Although such an injury usually takes about four to six weeks to be repaired without any intervention apart from a sling to support the arm; Lance Armstrong chose to undergo surgery. Although initial reports stated that he had the usual titanium plate screwed in to keep the two parts of the clavicle aligned, he was in fact the first recipient of a carbon fibre clavicle. As can be noted from the x-rays below:



Anterior Cruciate Ligament Injury

Good things come in twos and threes, but the same cannot be said about Ronaldo's multiple knee injuries. As if three injuries to his right knee were not enough, he also twice tore his anterior cruciate ligament! His last cruciate injury tear (which occurred in his left knee) sent him to the brink of retirement on the 13th of February 2008. The match was between Milan and Livorno with the score poised at 1-0 in favour of the underdogs Livorno. Ronaldo jumped for the ball, landing awkwardly. Marco Amelia, the then Livorno goalkeeper, who was in the thick of the action, later told the media "I heard a horrible sound, like a bang, it was a strange sound". Ronaldo was then rushed to the Galeazzi hospital in Milan where he was diagnosed with an anterior cruciate ligament rupture.

This audible pop or crack that Amelia described is characteristic of ligamentous knee injuries. The anterior cruciate ligament crosses the knee in a diagonal fashion. Its role is to thwart the forward movement of the tibia from underneath the femur. Together with the posterior cruciate ligament, it acts to stabilise the knee; especially in contact sports where changes in direction are common. Rupture of any of these ligaments would naturally result in instability and imbalance to the knee joint.

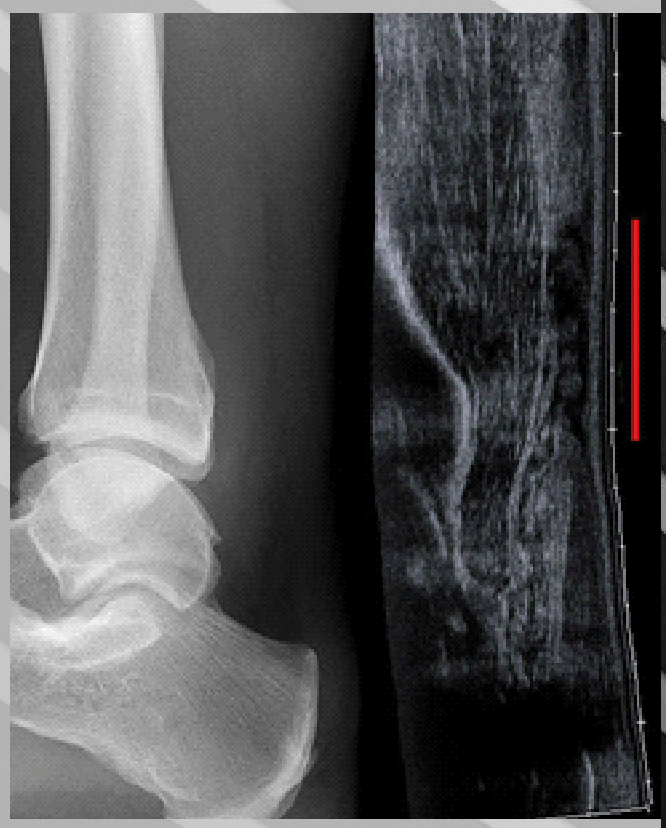
A torn anterior cruciate ligament can result from a twisting force applied to the knee when the foot is firmly planted on the ground or upon landing. The anterior cruciate ligament is often concurrently associated with a medial meniscus tear and a medial collateral ligament tear. The triad of injuries is formerly referred to as O'Donoghue's triad.

The incidence of anterior cruciate ligament ruptures are far more common in women. This skewed distributional phenomenon is considered to be idiopathic in nature, but current research points towards the altered minor anatomical differences, the effect oestrogen has on the ACL and the difference in muscle balance between males and females.

Once the injury occurs, first line treatment should consist of a mixture of rest, ice, compression and elevation of the affected leg. Once the swelling has subsided, surgery for ACL reconstruction is one viable option. Post-surgical physiotherapy for rehabilitation is then necessary, followed by six to nine months of abstinence from high level physical activity.

Achilles tendon rupture

The Achilles tendon or the tendo calcaneus attaches the gastrocnemius and soleus muscles to the calcaneus. Injuries to this tendon may be either due to overuse, sudden increases in training, misalignment (unequal leg length or over/under pronation), improper footwear or trauma. The Achilles tendon does not have a true tendon sheath and has a relatively poor blood supply. It has a particular zone of hypovascularisation (2-6 cm above the heel) which is the site of 80% of Achilles tendon ruptures. Before rupturing, this tendon can stretch up to 8% of its length. Most Achilles ruptures are of a sudden occurrence, as happened to David Beckham on the 14th of March 2009 whilst playing with AC Milan against Chievo in a Serie A game. Beckham was in the centre circle under no pressure from opposing players and surrounded by plenty of space. He touched the ball with his left foot and as he stepped back on this same foot, he felt a kick-like sensation on it. Apart from feeling a kick-like sensation, a rupture of this tendon is usually accompanied with a popping sound, pain and a sudden loss of strength and movement.



When reviewing Beckham's mechanism of injury it is difficult to imagine the tendon being loaded with a force it couldn't cope with. When this tendon is ruptured, plantar flexion of the foot would be impossible. A gap of about two inches above the heel can also be felt and as Beckham also reported, the calf muscles would be felt retracting proximally. Such a tear in the tendon would require surgery. This involves the suturing of the two parts of the tendon together. Recovery before returning to sports usually takes four to six months, but elite athletes have even managed to return after three. An X-ray is carried out to check for any fractures (none of which are evident in the accompanying image to this article), whilst a sonogram is carried out to check for ruptures in the tendon as can be noted in the accompanying picture. The rupture has a length of over several centimetres, and is visible as a discontinuity in the tendon (indicated by a red line).

Facial bone fractures

Martin Demichelis, a well known Argentinean defender, was playing in an international friendly football match against Germany, just a couple of months before the World Cup tournament of 2010. As Demichelis went to head the ball, a German player's knee forcefully hit the Argentinean straight in the eye, leaving him writhing on the floor in agony and clasping his face.

Demichelis sustained three facial fractures: to the orbital floor, the zygomatic arch (cheekbone) and the upper jaw. He underwent surgery to repair the damage, which was then followed by rehabilitation training with the use of a stabilising and protective mask.

Blowout fractures (as had occurred in his case), occur when the eye is struck with a large force and thus the intra-orbital pressure rises abruptly, resulting in the "blow out" of the orbit into the maxillary antrum. The orbital floor being the weakest is the area that gives way first. The three main outcomes from a blowout fracture are diplopia (double vision), enophtalmos (recession of the eyeball within its socket) and infraoribital anaesthesia due to damage to the infraorbital nerve in its bony canal. Enophtalmos is late in onset as it is originally masked by periorbital swelling. Investigation usually involves computed tomography. Eye movement following a blowout fracture may be painful.

In the case of zygomatic (cheekbone) fractures, the affected side of the face appears to be flattened and facial symmetry is lost. The infraorbital nerve can also be damaged by a zygomatic arch fracture. Mouth opening may be limited following this injury; as the depressed arch impinges on the underlying temporalis muscle at its insertion to the coronoid process of the mandible.

In most cases the cause of concern is generally not the actual fracture but the possible neurological damage that is often associated with facial fractures. Athletes with facial bone injuries can expect to be out of action from a six to eight weeks. In the case of contact sports such as football, basketball or rugby, a face mask most be worn.

Chris Cremona And Simon Micallef

Tropical Diseases

In the cold, damp months of winter, it is easy to daydream of visiting some tropical paradise, still unspoilt by development. So you've roped in your friends on the idea and soon the preparations begin Your thoughts begin to wander off to the most exotic of places. From Brazil to Uganda to Indonesia – the sky's the limit! Reason then kicks in as you realise that the flights are going to cost you an arm and a leg so you'll just have to stick to a strict budget whilst

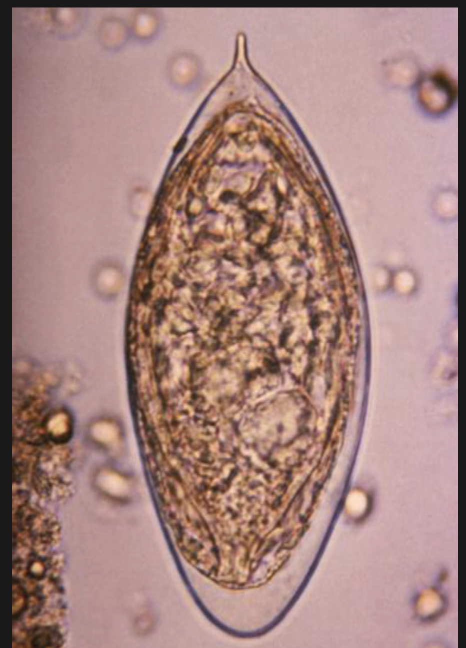
To make matters worse, your doctor advises you to get vaccinated against a number of 'tropical diseases' but you are petrified of needles! To hell with them! So what if I contract a so-called 'tropical disease'?! How sinister could theses diseases actually be?

The World Health Organisation (WHO) describes 'tropical diseases' as being those which "occur solely, or principally, in the tropics. In practice, the term is often taken to refer to infectious diseases that thrive in hot, humid conditions…" Everyone has heard of AIDS which was previously thought to be a tropical disease, and yet it is now present in every niche of the world. But have you ever heard of 'Buruli Ulcer Disease'? Not unless tropical medicine is one of your interests, since it has been reported of in only thirty countries! Extensive research would be needed to determine the exact prevalence rates of a disease due to numerous problems. One such problem is that it might not be a notifiable disease in some countries and sometimes those affected by it live in rural areas and so are never diagnosed. Still, it is believed that certain parasites and parasite containing vectors require particular climate (tropical) conditions to thrive. Some of these diseases know no boundaries and have evolved extensively over place and time.

Malaria is one such illness. It has been around for centuries. Shakespeare even makes a reference to it in his 'Henry V': "he is so shak'd by the burning quotidian tertian that is most lamentable to behold'.

Some tropical diseases are further classified as 'neglected tropical diseases'. The term was coined in order to describe certain tropical diseases found amongst the poorest of populations. The previously mentioned 'Buruli Ulcer Disease', as well as 'Rabies' and 'Schistosomiasis' also fall under this heading.

Schistosomiasis (also known as 'Blood Fluke' or 'Swimmer's Itch) is a chronic disease caused by a parasitic blood fluke; five species of which are responsible for its cause! You might want to cool down in a fresh water pool when finding yourself in the hot temperatures of Africa, but think twice before doing so!



Freshwater snails release larvae or 'cercariae' which swim through the water and burrow through the skin during contact. The cercariae mature into adult schistosomes and their survival tactics lie in their ingenious self-replenishing cycle They live in the host's blood vessels, which are also the site of release of eggs by the female parasite. Some of the eggs will be excreted through the faeces or urine and can easily penetrate other snails whilst the rest will remain in body tissues, causing an immune reaction with devastating effects.

The two major types of Schistosomiasis are 'intestinal' and 'urogenital'. Intestinal schistosomiasis is characterised by diarrhoea, blood in the stool and abdominal pain, and a distinguishing factor of the urogenital form is the presence of blood in urine, referred to as 'heamaturia'. Women may complain of genital lesions, whilst men will present with symptoms related to their prostate or seminal vesicles, both factors predisposing to bladder cancer. Schistosomiasis is also known to cause anaemia and a reduced ability of learning in children. The disease may ultimately lead to death and it is estimated to cause more than 200,000 deaths per year.

Certain precautionary measures must be taken so as to try and limit the onset of new cases of this disease Preventive treatment with use of 'praziquantel' is carried out for all those found in risk groups. Treatment costs less than $1 per day, but yet less than 14% of these people actually receive such treatment. Other preliminary options in these areas include snail control and improving sanitary conditions.

Right, let's assume that you are completely off the idea of swimming in fresh water ponds, but you are still not completely in the clear! Are you familiar with the Ebola filovirus? It is responsible for the infamous 'Ebola Haemorrhagic Fever' (EHF), and these viruses are considered far more dangerous than the schistosoma trematode.

The Ebola virus is transmitted by direct contact with contaminated blood, body secretions, body fluids, and organ. The handling of or direct contact with infected animals, Ebola patients (as well as any of their contaminated clothing), who are either living or deceased, can all play a significant role in its mode of spread!

The disease presents itself with quite a detailed clinical scenario. At first, patients may display a sudden onset of fever, intense joint pain and headache, which may then progress to vomiting, impaired liver and kidney function, with sometimes even leading to internal and external bleeding!
The fatality ratio infection by these strains is in the range between 25 to 90%.

Of course, severe cases will necessitate the need for intensive round the clock care as patients frequently require fluid replacement therapy. Unfortunately since there is no specific treatment or vaccine available for this grievous illness, the prevention of the further spread of this highly contagious virus is emphasised, and infected patients are therefore kept in close isolation.

Luckily for us, when visiting tropical destinations we are always forewarned to take all vaccines, medicines and any other possible precautions. Prevention is better than cure - Treating these tropical diseases is easier said than done! Many countries are affected are those which unfortunately are not that wealthy and usually have limited access to free health care.

A few statistics? Botswana spends $358 per person on health care each year, a figure which can be contrasted to the $15 spent by Nigeria. Although the credit crunch has hit the world's economy hard, WHO states that evidence shows that the cost of treating one or more neglected tropical diseases is negligible compared with that associated with other illnesses.

With that said, have I put you off travelling to a warmer climate in the winter? Is anyone up for a skiing holiday?

Malcom Mintoff

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