

Issue 12 Autumn 2021

# eyes NEWS

The newsletter of the ESE Young Endocrinologists and Scientists



## **The *endocrine* Olympics**

where endocrinology  
meets professional sport

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### **Also in this issue**

EYES 2022 Observerships launching  
soon and spotlight on Environmental  
Endocrinology



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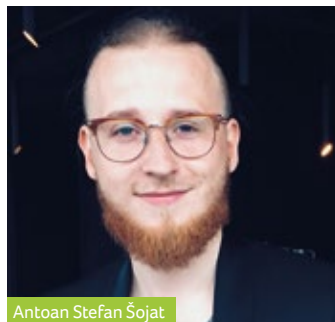
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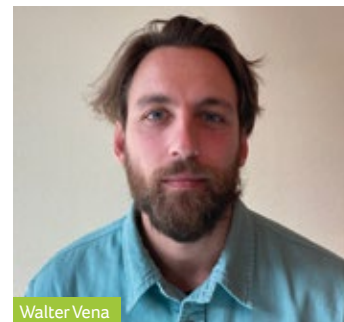
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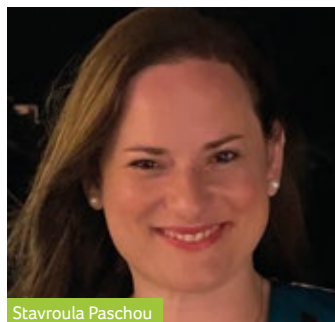
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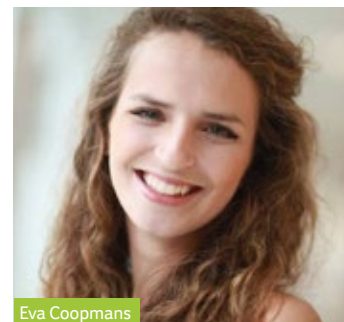
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Eva Coopmans



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Juan Manuel Jimenez Vacas

Autumn is a time to be thankful for the things that we have accomplished and to feel motivated about what the future holds. You are now holding an EYES Newsletter that has been carefully crafted to be your companion through long nights while writing projects or grant proposals, working shifts at the hospital or your lab or just drinking a coffee with your loved ones on a fresh Saturday morning. In this issue we take you to the 'endocrine Olympics' - with feature articles about transgender athletes, doping, menstrual cycle in sports and exercise in extreme conditions, plus some interesting first-hand interviews with some real live Olympians themselves! Get inspired by Oded Rechavi and his amazing career in science, motivated by our fantastic EYES 2021 Annual Meeting recap and the EYES 2022 Annual Meeting announcement with important dates for you to note, and meet our new EYES Newsletter Editorial Board members. We also present the EYES 2021/22 observerships, the ESE Focus Area on Environmental Endocrinology and EYES at the Italian National Society.

On your marks! Get set! Read!

**Antoan Stefan Šojat,**  
EYES Newsletter Editor

**eyes** 

ESE young endocrinologists  
and scientists  
looking forward



# EYES Co-Chair Report

I am very pleased to announce the two new EYES News Editorial Board members who were recently elected. Dr Settimio D'andrea (Italy) and Dr Karin Zibar (Croatia) will join us from 2021 for the next four years. I would like to thank everyone who submitted an application, it was a highly competitive process and so I would encourage you all to submit again in the near future when the time comes to elect new Editorial Board members.

I hope you also enjoyed and felt inspired by the 8th annual EYES 2021 meeting from Birmingham, UK. This virtual meeting turned out to be a very successful format, not just by numbers as we were able to reach out further in terms of involving people than we could have done face to face, but also in diversity and topics. We were overwhelmed by you, the number of early career investigators that actively participated with us these three days. I think this meeting clearly showed that EYES is the leading voice for early career individuals within the field of endocrinology, not only in Europe but worldwide. We tried to be innovative in this meeting with first-of-its-kind items such as the peer reviewing workshop, funding opportunities and forward looking endocrinology talks, and my favorite- the virtual escape room - which was pretty awesome. I'm very proud of the local organising committee that ensured to make

the best of it with constant numbers of 100+ delegates in each session with a lot of Q&A.

To continue to be the driving force for the next generation of endocrinologist and scientists, I strongly encourage you to be and stay a part of EYES. And I would like to invite you to actively participate in our various career development initiatives such as the Clinical Observership Programme (C.O.P), Mentoring Scheme and the new Coffee Connections monthly online chat and coffee. I hope to see you soon at one of our events!

**Eva Coopmans**, The Netherlands  
EYES Committee Co-Chair



ESE young endocrinologists  
and scientists  
looking forward

## Key Dates for your Diary

**6 - 9 Oct 2021**

**45th Symposium on hormones and cell regulation**

Sex and signaling: The molecular basis of sex and gender medicine  
St Odile, France

**9 - 11 Dec 2021**

**7th ENEA Workshop**

Dubrovnik, Croatia

**30 Sep 2021**

**ESE Talks...Adult Growth Hormone Deficiency (AGHD)**

Online

**8 Oct 2021**

**EYES Coffee Connections...Publish or perish - importance of research output**

Online

**21 Oct 2021**

**ESE Spotlight on Science**

Online

**25-29 Oct 2021**

**28th ESE Postgraduate Training Course in Clinical Endocrinology, Diabetes and Metabolism**

Online

**12 Nov 2021**

**EYES Coffee Connections**

Online

**15 Nov 2021**

**PARAT Webinar**

Online

**22-24 Nov 2021**

**EuroPit 2021**

Annecy, France

**29 Nov - 1 Dec 2021**

**ESE Clinical Update on Obesity 2021 Webinars**

Online

**2 Dec 2021**

**ESE Spotlight on Science**

Online

**10 Dec 2021**

**EYES Coffee Connections**

Online

Keep up to date with ESE events at

**Events & Deadlines | ESE ([ese-hormones.org](http://ese-hormones.org))**



# Transgender Athletes

## Joanna Harper

Many people were upset when Laurel Hubbard competed at the Tokyo Olympics this summer, but almost no-one took notice when Quinn won a gold medal as part of the Canadian women's football team. Both athletes are transgender (or trans) and were joined by skateboarder Alana Smith as the first set of openly transgender Olympians. The anger over Hubbard's participation stems from the fact that Hubbard competed in the women's category although she was assigned male at birth. Quinn and Smith also competed in the women's category (their birth-assigned sex) but both identify as non-binary.

The current Olympic guidelines suggest that trans women, such as Hubbard, should be allowed to compete in the women's division once they have 12 continuous months of low testosterone resulting from hormone therapy. The same guidelines permit trans masculine athletes to compete in the women's category provided they have not started taking testosterone as part of their therapy. New Olympic guidelines will be released in 2022. Critics claim that trans women such as Hubbard maintain advantages over cisgender (or typical) women, and that these advantages are unfair.

Published data on the performance of trans athletes are sparse, but some things are known. Trans women lose strength, speed, and stamina with hormone therapy. Haemoglobin (very important in endurance sports) will rapidly decrease from male to female levels with hormone therapy, but strength decreases are slower and trans women will maintain some strength advantage. The magnitude of strength advantage maintained by trans women is unknown, nor is it certain if this advantage is unfair.

Advantages are allowed in sport, however if the magnitude of biological advantage is too great, athletes are placed into separate categories. It isn't clear if the biological advantages held by trans women are too large to allow meaningful competition with cisgender women, however, one indirect method to assess the appropriateness of allowing trans and cisgender women to compete together would be to use population studies. If trans women were equally represented in the Olympics, then there would be more than thirty trans women competing in the summer games winning approximately three medals. Given that trans women have been allowed in the Olympics since 2004, that Hubbard was the first openly trans woman to compete and that she finished last in her fourteen-person category, this population study would suggest that trans women and cisgender women can engage in meaningful competition. Other population studies confirm that trans women remain under-represented after hormone-therapy based regulations are put into effect.

Critics also contend that the maximum testosterone level stipulated in the Olympic guidelines (10 nmol/L) is too high given that almost all women have testosterone levels under 2 nmol/L. Trans women undergo transition to become more like cisgender women and not for sports. Standard hormone therapy regimes are designed to bring testosterone levels of trans women to typical female values. Trans athletes follow these regimens, hence will maintain testosterone below 2 nmol/L regardless of limits specified by their sport.

Of course, most transgender athletes, like most cisgender athletes compete in sports at levels far below the Olympics. Given

Joanna Harper is a PhD researcher at Loughborough University whose area of expertise is transgender athletic performance. Joanna is the author of the book *Sporting Gender* and has worked with numerous international sports federations on policy concerning gender variant athletes.



that transgender people face many barriers to sports participation, rules for grassroots sports should be different from rules for Olympians. At levels where cisgender athletes face no testing, transgender athletes should be allowed to compete in the male or female divisions based on gender identity. Recreational athletes could also be split into categories other than by sex or gender. Grassroots sport should also consider ways to reduce barriers (modifying gender-specific uniforms and changing facilities are two) for gender non-conforming athletes to enjoy sport.

Joanna Harper, UK

**'It isn't clear if the biological advantages held by trans women are too large to allow meaningful competition with cisgender women, however, one indirect method to assess the appropriateness of allowing trans and cisgender women to compete together would be to use population studies'**



# Endocrinology and hormone doping in sports

Understanding of the mechanisms of action of various hormones is pivotal for studying and treating disorders of the endocrine system. The pharmacological properties of hormones also pose enormous challenges in relation to their misuse in sports and exert immense adverse health effects on both professional athletes and recreational users. The use of substances to enhance elite athletic performance has long been recorded, from the ancient to the modern Olympics. Nevertheless, the list of banned substances was first introduced by the International Olympic Committee in 19671. The World Anti-Doping Agency (WADA), established in 1999, currently serves as an independent international entity for promoting, coordinating, and monitoring anti-doping regulations in sport.

In modern sports, steroid and peptide hormones are often misused for the purpose of gaining a competitive edge, constituting 53% of adverse analytical findings and 96.3% of atypical findings according to the WADA's 2019 Anti-Doping Testing Figures<sup>2</sup>. The widely used synthetic steroids, such as stanozolol and drostanolone, exhibit both the anabolic and androgenic properties in increasing muscle mass and strength, thereby being frequently abused in strength and power sports<sup>1,3,4</sup>. Erythropoiesis stimulating agents, such as erythropoietin and its biosimilars, promoting red blood cell production and oxygen transport are used to enhance endurance capacity<sup>1,3,4</sup>. Other classic examples of doping agents are the growth hormone (GH) and growth hormone releasing factors. GH regulates many metabolic processes mediated by insulin-like growth factor-I, stimulating the reduction of fat mass, the increase of lean mass, and tissue repair<sup>1,3,4</sup>. The performance-enhancing effects of GH, however, remain controversial<sup>1,3,4</sup>. In addition, the paucity of studies on serious adverse effects of excessive abuse of the substances is noteworthy<sup>5</sup>. For example, withdrawal of steroids is often linked with the suppressed hypothalamic-pituitary-thyroid axis, resulting in a series of distressing symptoms<sup>5</sup>. Other health issues include but are not limited to cardiovascular, metabolic, endocrine, neurologic, and infectious disorders<sup>5</sup>.

**'The pharmacological properties of hormones also pose enormous challenges in relation to their misuse in sports and exert immense adverse health effects on both professional athletes and recreational users.'**

Although advances in flow cytometry, mass-spectrometric approaches, and high-throughput molecular biology have facilitated and continue to improve anti-doping testing sensitivity and specificity, challenges and knowledge gaps persist in detecting the endogenous and exogenous substances effectively. A wide array of naturally produced and synthetic hormones being misused in sport doping ultimately calls for prospective, integrative research across disciplines to determine mechanisms of action of hormones at the molecular level to fight against doping and to manage long-term adverse health effects in athletes and in healthy populations.

**Guan Wang, United Kingdom**

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# Amazing careers: Meet Prof. Oded Rechavi

Oded Rechavi is a Full Professor in the Life Sciences Faculty at Tel Aviv University. His mission is “to challenge fundamental long-held dogmas”.

Using *C. elegans* nematodes he provided direct evidence that an acquired trait can be inherited, worked to elucidate the mechanism and rules of small RNA-mediated transgenerational inheritance, discovered that the nematodes' brains can control the behavior of their progeny, and identified a simple neuronal circuit-level mechanism that explains economic irrationality. Aside from his work on nematodes, Oded utilised genome sequencing of ancient DNA to “piece together” fragments of the Dead Sea Scrolls and demonstrated that *Toxoplasma* parasites can be genetically engineered to deliver drugs to the nervous system. He is an ERC Fellow, and was awarded many prestigious prizes, including the Polymath prize (Schmidt Futures), the Kadar award, the Blavatnik award, the Krill Wolf award, the Alon, and F.I.R.S.T (Bikura) Prizes, and the Gross Lipper Fellowship. Prof. Rechavi is a member of the young Israeli Academy of Science and the European Molecular Biology Organization and was selected as one of the “10 Most Creative People in Israel Under 40”, and one of the “40 Most Promising People in Israel Under 40” and has been recently made an EMBO member and a member of the Israeli Young Academy of Science.



## How did your journey begin and how did it lead to your current studies in the field of inheritance and evolution?

Since I was a kid I thought that I'll be an artist, so after the army (which is mandatory in Israel) I traveled to Paris, studied some painting, and went back to Israel to present my work in a couple of exhibitions. In parallel, I signed up to Tel Aviv University (where I am faculty today), for a degree in neuroscience, which was a combination of biology and psychology. I fell in love with biology and decided to focus on it. I did my PhD in cell biology, with the late Professor Yoel Kloog, and transitioned to study inheritance and evolution only later, in my post doc with Professor Oliver Hobert in Columbia University, New York. Oliver challenged me to challenge the dogma that says that parental responses cannot be inherited. This started a long journey, and I don't see how I ever stop asking this question.

## What do you see as a key moment of your career?

There were many key moments, one of the important ones is my decision, which wasn't based on much, to transition to study *C. elegans* nematodes. Once I saw the light, and revealed the awesome power of genetics, it opened a whole new world for me.

## What were the greatest challenges you have encountered?

The greatest challenge, and I think that's probably true for most people, is how to combine science with family, work-life balance. I want to believe that I am really good in doing that, I put a lot of effort into not being a workaholic, and not obsessing too much about career advancement, because it's really easy to get sucked into it.

## What do you think are the greatest challenges facing early career investigators now?

There are multiple challenges, one of them, and this is because the system is built wrong, is how to switch fields and change your research direction completely, when you have a new idea, or when something suddenly interests you. You carve a niche in your post doc, and it's hard to study anything else, even after 30 years of independence, because it's much easier getting grants and publishing when you already have a track record.

## How do these compare with when you were starting out in your career? Has there been any progress?

I started my own independent lab 9 years ago. I think the situation hasn't changed since. I was lucky that in Tel Aviv university people were supportive of me and enabled me to go wild and study many different things, even though I didn't have experience in these fields. I didn't feel any pressure to conform, in order to get tenure, for example.

## What are the most important direct implications of your work, out of many, in the field of endocrinology and human reproductive adaptation?

It remains to be seen whether the discoveries we've made in *C. elegans* nematodes are conserved in humans too. We don't know that's the case, but of course I hope so. We found that worms inherit, in parallel to DNA, also small RNA molecules, which regulate gene activity over many generations. These small RNAs change in response to the environment, and therefore carry the memory of the ancestors life. They are inherited by dedicated machinery and segregate in the descendants based on inheritance rules which are



different from the rules that explain DNA-based inheritance. This new epigenetic inheritance affects many aspects in the physiology of the descendants. Thus, if it is conserved (and I emphasize that we don't know yet!) it would transform the way we think about inheritance, and have major consequences for reproductive biology.

**What advice would you give to people setting out in endocrinology and science in general today?**

Don't wait till you get established (whatever that means) before studying what interests you the most and taking chances. I think it's always a good bet in science to aim high.

**Which scientists did you find more inspirational when you were starting out and why? Which have inspired you most since?**

The "big three" for me are Yoel Kloog (my PhD supervisor), Oliver Hobert (my post doc supervisor) and Gideon Rechavi (Gidi, my father). I also admire many other scientists, who I don't know

personally (but studied their biographies), most notably Sydney Brenner. It's not about making a particular discovery, it's about their style, how they do science, their approach and process.

**What's the "physiological relevance" of the traditional peer review system and what could be done to improve it?**

Regarding the physiological relevance of the peer review system: I think it's optimised to cause pain :) one way to improve it is to conduct peer review post publication. I think (hope) that journals will evolve to be pre-print curators.

**Have you ever found out who Reviewer #2 was'?**

Yes, I'm almost sure that are least a few times I managed to find out his/her identity :)

**Antoan Stefan Šojat, Serbia**

# Ultra-endurance extreme events and the role of hormones.

Over the last few decades extreme sports have gained in popularity worldwide. These activities are popular not only with adventurous elite athletes, but more and more everyday people are participating in ultra-endurance extreme events on a recreational basis (e.g. ultramarathons). With increasing numbers of people becoming involved in extreme sports, it becomes important to understand the endocrine and metabolic responses to such activities on the human body due to their potentially stressful nature.

One of the classic ultra-endurance events of exercise in extreme conditions is the Hawaiian Ironman triathlon. In a unique opportunity, Ginsburg and colleagues<sup>1</sup> performed a large-scale study of 57 participants in this championship who completed the triathlon (3.9 km swim, 180.2 km bike, 42.2 km run). The primary aim of the study was to assess if the degree of exercise-induced oxidative stress similarly affected men and women who participated in the triathlon. Following the race, the susceptibility of plasma lipids to peroxidation was reduced in men but not so in women. In men, the race also induced a significant increase in antioxidant sex hormone estradiol, while a concomitant reduction in testosterone occurred. No significant changes were noted for these two hormones in women. The authors concluded that there are marked gender-specific differences in aspects of oxidative stress responses to participation in an ultra-endurance extreme event. It remains unanswered if the testosterone reduction in men was due to increased peripheral tissue conversion of testosterone to estradiol or stress-induced gonadal suppression.

South Africa has a rich history of holding ultra-endurance extreme events. For example, the Comrades Marathon is an ultramarathon running event (approximately 90 km) between the cities of Durban and Pietermaritzburg and is the world's largest and oldest ultramarathon race (started in 1921). In 2007, Hew-Butler and colleagues<sup>2</sup> completed a comprehensive study examining the endocrine responses of seven endurance-trained runners who performed three separate running trials: a maximal test to exhaustion (high-intensity), a 60 minutes treadmill run



(steady-state), and a 56 km ultramarathon (prolonged endurance exercise). This study aimed to examine changes in endocrine and fluid balance markers and compare these across the three bouts of exercise. The ultramarathon event results in more substantial post-exercise increases in oxytocin, NT-proBNP, aldosterone, IL-6, cortisol, corticosterone, and 11-deoxycortisol when compared to the other two forms of exercise. Interestingly, this was not the case



with ADH which was more elevated following the high-intensity test. These findings suggest that the extended duration of the ultramarathon induces more of a hormonal stress response and overall physiological demands on the stress reactivity and fluid balance regulation aspects of the endocrine system.

Kraemer and colleagues<sup>3</sup> examined hormonal responses to another ultra-endurance event: an extreme 160-km competition across frozen Arctic Alaska. Sixteen men competitors in this race could complete the marathon using either skiing, cycling or running, however, this study only examined cyclists and runners. Participation in this ultramarathon induced substantial increases in GH, cortisol, and IL-6. Conversely, there was a concomitant reduction in testosterone levels that was suspected to be associated with the amplification of adrenal stress response for cortisol to such an ultra-endurance race. There were no significant differences in the hormonal levels between the two types of athletes.

Another cold weather-related study was that of Benso and colleagues<sup>4</sup>, who examined the endocrine and metabolic status of mountain climbers doing a Mount Everest expedition. They study nine male elite climbers for approximately two months of ascent and descent trekking at altitudes ranging from 5.200 to 8.852 meters. This demanding physical activity at high altitude resulted in increased activity of the GH/IGF-I axis and prolactin as assessed by blood measurements. A substantial suppression of the hypothalamic-pituitary-thyroid axis-related hormones resulted in the development of a “low T3 syndrome” condition (i.e. the situation of low serum tri-iodothyronine [T3] and elevated reverse T3 occurring from a nonthyroidal illness or event, without pre-existing hypothalamic-pituitary and/or thyroid gland dysfunction). This picture suggests a high-altitude-induced low T3 syndrome that would reflect an impairment of peripheral free T4 to free T3 conversion under chronic exposure to high-altitude hypoxia.

There is a substantial amount of research literature characterizing the hormonal responses of the endocrine system to regular physical activity, exercise, and typical sports events. To date, however, the research studies examining the hormonal and metabolic responses to ultra-endurance extreme events are exceptionally few and limited. The available studies would suggest there is a great deal of stress reactivity response within the endocrine system by extreme sport participation (i.e. high circulating levels of stress-reactive hormones – cortisol, GH and prolactin). It is most certain, however, that some of these hormonal and metabolic changes in response to prolonged endurance nature are also occurring in an attempt to bring about metabolic, immunological, and cardiovascular adjustments necessary to perform physical exercise. That is, the aforementioned hormones are implementing key physiological roles and adjustments within the human body. Nevertheless, at this time due to the extremely few studies available researching ultra-endurance extreme events, it is difficult and most certainly premature to completely characterize the hormonal responses as being only those just depicted above. Much further work is necessary to completely portray the endocrinological responses and implications of ultra-endurance extreme events participation.

**Eva C. Coopmans, The Netherlands**

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# Inside Tokyo Olympic Games

What better occasion than an Olympic Games to promote sports and health? To dive into the Tokyo Olympic atmosphere, we interviewed Giampaolo Ricci, a basketball player for the Italian Men's National Team, and asked him about his first Olympic experience during this last summer.

## How did it feel to participate in such an important sporting event for the first time ?

“Since the very moment our plane landed in Tokyo, all of us were thrilled and sure that we were about to have an unforgettable experience. The warm welcome from the Organisation Committee confirms that everything is set for a great showdown. At the Olympic Village, a melting pot of over 200 nations, their colours and ethnicities, creates a multicultural atmosphere that makes it difficult to find the words to describe it. Hanging out in this little “town”, surrounded by the best athletes in the world gave me goosebumps. We were in the place which every athlete in the world dreams to be, and believe me or not, I could barely convince myself that it was true and I was there.

The opening ceremony left me and all my teammates speechless, the fireworks, the show... and the flame that then simultaneously started inside each one of us.

Then the training, the sweat, the matches and the growing desire to win an Olympic medal. We were not the favorite team in the tournament, we all knew this, but still we wanted to prove to all our citizens and to basketball fans that we deserved to be there.”

## What is the most important lesson you learnt from this experience ?

“KAIZEN” is a composite Japanese word, constituted by the terms: KAI meaning “change” and ZEN “better”, which could be translated as “continuous improvement”. This is the central idea of most of Japanese philosophy in many fields, from economics to business managements, to everyday life attitude. I think this is the most precious thing I could learn from Japanese culture: the continuous attention to detail that allows you to improve something about your life, without the need to wait for it to malfunction or be broken.”

## As a successful athlete, what is the best advice you would give to your younger self?

I often think about this and I think I was very lucky to be surrounded by wise friends and parents who led me through the difficult times and moments of my career. Therefore I would suggest to young professionals of every field to be able to accurately choose the people you have in your close circle, because in the long term it is very important to have someone that you can rely on for difficult decisions that will shape your career.

Walter Vena, Italy





# EYES 2021 Meeting: a virtual success

After two years of challenging planning, EYES 2021 hit our screens on 3rd-5th September 2021. Bringing together 250 delegates from 41 different countries, the first ever virtual EYES meeting delivered 30 oral presentations, multiple inspirational guest presentations and panel discussions, a unique, customised virtual poster hall and received impressive feedback. For those of you who were unable to join us, we want to share with you some of the highlights and for those of you who were there with us, we hope that this is a pleasant recap of those 3 days of science and socialising.

## Our committee built on equality, diversity and inclusiveness

Lead by clinician and Wellcome Trust Fellow Dr Punith Kempgowda, with the support of our brilliant secretary and treasurer, Dr Elizabeth Baranowski, our local organising committee (LOC) was international and transgenerational, spanning many nationalities and stages of training. We had a balance of pre- and post-doctoral early career clinicians and academics which allowed us to ensure that the high-quality content showcased was relevant to all delegates. The committee's work could not have been possible without the support of our fantastic team of medical student deputies who worked hard in each stream of the conference.

Designing and organising the 3-day event and making the switch to virtual was a tough challenge for all but virtual meetings enabled us to continue to work closely as a committee despite the inevitable changes in location that occur over two years of training.

## Transparency and openness in the process of abstracts and presentations

It was clear from reading the submitted abstracts that we would have our work cut out with selecting the top abstracts for oral presentation. Transparency was at the heart of our discussions around abstract marking and we ensured that scoring criteria were made available on our conference website in addition through social media as a video through our collaboration with SIMBA CoMICs.

The top 6 abstracts in each category were invited to deliver an oral presentation. As we were fortunate to have delegates from around the world in different time zones, to avoid issues with internet connectivity, presentations were pre-recorded but presenters were live for their post-presentation Q&A session where plenty of discussion was generated! Thankfully our eminent hosts were on hand to co-ordinate the questions and keep us to time.

Each session was carefully viewed by the central EYES committee who marked all oral presentations and awarded a winning presentation for each session. These top scoring presentations in



each category were presented with a certificate of achievement. The top scoring presenter of the whole conference, Riccardo Pofi, was awarded free registration to EYES 2022! Our runner up was not left out though; second prize presenter, Ricardo Blázquez-Encinas, won free registration to the British Society for Endocrinology 2021 annual meeting – many thanks to SFE for supporting the LOC with this.

## Inspire to Aspire – Career inspiration and inside information

In addition to providing a platform for early career endocrinologists to showcase their latest research, we offered inspirational talks from clinical and academic endocrinologists alongside fantastic interactive, practical workshops to help with career planning and management.

It is hard to aspire to great heights without role models and we were able to secure a diverse range of motivating speakers to talk about their careers and answer panel questions with a strong emphasis upon avoiding “manels”.

Led by LOC member Dr Lina Schiffer, our peer reviewing workshops were also a great success. Combining practical advice from experienced leaders with two, tailor-made interactive workshops, our delegates were able to get to grips with the ins and outs of peer reviewing in a way that many early career endocrinologists do not get a chance to do.

For those delegates looking to secure funding for their research and training, we secured an excellent panel of speakers across two dedicated funding sessions on day three. Not only did delegates learn about the range of opportunities available from ESE but the ERC also provided some top tips about how to secure funding with some insight from an ERC awardee as well.

Additionally, in a bid to contribute to delegates' training we secured CME accreditation – again led by our LOC member, Dr Lina Schiffer, working with the ESE Office, this was a first ever achievement for an EYES meeting!

## Socialising – a virtual reality

With the knowledge that networking and socialising with our international counterparts is a key component of EYES meetings, the decision to hold the meeting virtually was a heavy one. Set against the backdrop of unpredictable, ever-changing travel restrictions due to the Covid-19 pandemic we worked hard to create an engaging programme of social events so that delegates did not miss out on this important element of the meeting.



At the end of our first day, we held a light-hearted general knowledge quiz designed by two of our LOC committee members and their team, Ms Federica Cuozzo and Dr Vasilis Chortis. Topics spanned from identifying flags to celebrity eyes and combined with a live player leader board and dynamic hosting from LOC colleagues Dr Anne de Bray, Dr Elizabeth Baranowski and Miss Pavithra Sakthivel, it was a quizzically fun end to day one.

Our day two social event day saw our delegates team up to travel through time to find clues and answer questions about medicine through the ages. Designed and delivered on a novel virtual platform by our social events team, it was truly a race against the clock to answer riddles about origins of modern medicines and questions about historic medical events and pioneers. A clearly very competitive audience, the winning team succeeded by mere seconds!

### Let's meet each other face-to-face: Looking forward to Zagreb

Looking back across our three-day event, we are proud to have been able to bring together so many early career endocrinologists from around the world, especially being able to involve those who may not have ordinarily been able to join in person. We hope that not only did our content prove inspiring but that our commitment to transparency, inclusivity and equity was evident.

From our post-conference feedback, it is clear that a virtual element has proven popular with delegates but we do wish we'd had the opportunity to share the highlights of Birmingham with delegates in person. Instead, the Birmingham LOC look forward to seeing the sights of Zagreb next year and wish our Croatian colleagues all the best as they organise EYES 2022.

**Dr Anne de Bray and Dr Punith Kempegowda,**  
on behalf of the EYES 2021 LOC

# Sport and the Menstrual Cycle

Nowadays more than ever before, barriers in professional and non-professional sports are being demolished and it is now usual for girls and women all over the world to participate in sport in some way. During last Olympics held in Tokyo, indeed, almost 50% of participants athletes were female vs only 11% who participated in the Olympic Games held in Rome back in 1960. General physical benefits of sport for all are well known, but importantly there are also the social and psychological benefits both for individuals and groups.

However, education on long-term health and athletic achievement of female athletes is not equally distributed in different geographical areas. Indeed, besides the multiple beneficial effects of physical activity on health, the possible negative consequences of certain type of training need to be carefully described and avoided, due to their possible long-term unhealthy outcomes.

More in detail, the most well-known health-related threat among female athletes is the loss of the menstrual cycle, to which endocrinologist and gynecologists mainly refer to as "functional amenorrhea". A regular menstrual cycle is a marker of physical and mental well-being in all the women during reproductive age. According to the latest published guidelines from the Endocrine Society, and co-sponsored by the European Society of Endocrinology<sup>1</sup> on the topic, the main factors leading to functional amenorrhea are psychological stress, nutritional deprivation and strenuous exercise training. To note, these can all be present among athletes, independently from the level of competition. Among female athletes, indeed, gonadal disorders are mostly observed in sports where body weight control is emphasized such as ballet, gymnastics, and long-distance

running<sup>2</sup>. "Relative energy deficiency in sport" (RED-S) is a condition characterised by a mismatch between energy intake from diet and the energy expended in exercise, leaving inadequate energy to support the functions required by the body to maintain optimal health and performance<sup>3</sup>. Neither the duration nor the threshold of energy availability below which menstrual disturbances occurs have been yet identified, however it is known how adaptive mechanisms highly preserved throughout human evolution are involved in the block of reproductive system that begins at hypothalamus with a reduced GnRH pulsatile function. Independently from the onset, RED-S can become a dangerous condition, with multi-systemic severe consequences involving skeletal, cardiovascular and immunological health. Paradoxically, this condition necessarily leads, on the long term, to a worse physical performance due to the increased rate of injuries, illness and to mood impairment, with the high risk to rapidly fall in a vicious circle that can ultimately severely impair the overall individual health status of athletes.

Therefore, the prevention of RED-S requires attention from scientific and athlete organisations. Similarly, the development of awareness about this condition among



physicians, coaching staff and athletes themselves is fundamental to prevent its spread across the whole community.

**Walter Vena, Italy & Stavroula Paschou,**  
Greece

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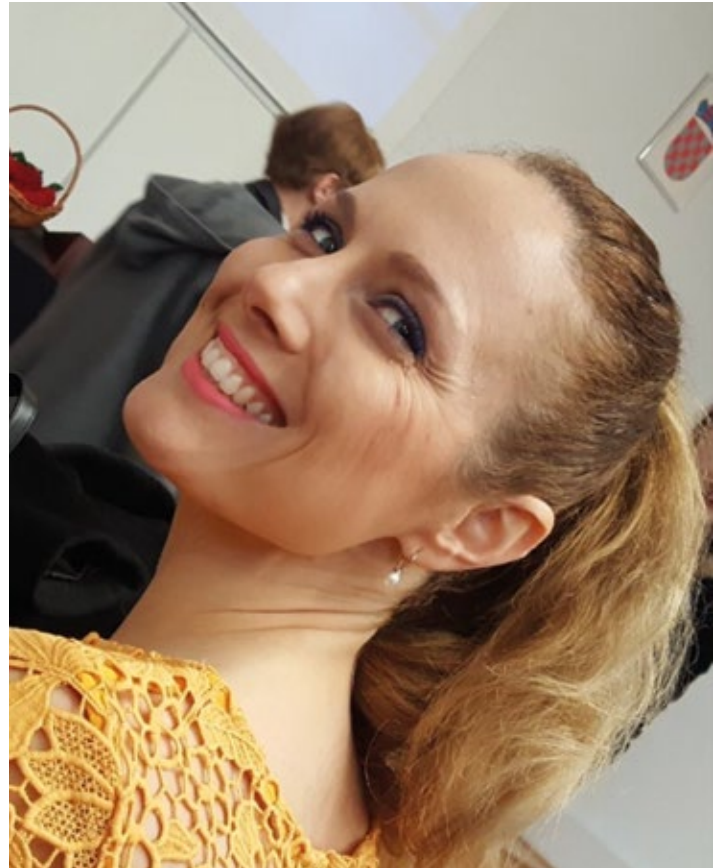


# Meet our new Editorial Board members



## Settimio D'Andrea

Settimio D'Andrea is a PhD and Medical Doctor working as an Endocrinologist and Diabetologist at the University of L'Aquila and "Hospital S. Annunziata" in Castel di Sangro, Italy. Dr. D'Andrea spent one year at "Centre Hospitalier Universitaire de Liège", in Belgium, during medical school. His scientific contributions make Dr D'Andrea a top young scientist, with more than 30 papers published in indexed journals. In addition, Dr. D'Andrea has attended numerous national and international congresses during the last 10 years, sharing his results and demonstrating a constant dedication within the endocrinology field. Moreover, the candidate is constantly active as a member of the Italian Society of Endocrinology (SIE), the Italian Society of Andrology and Sexual Medicine (SIAMS) and the European Academy of Andrology (EAA). Remarkably, Dr D'Andrea has headed the SIAMS Newsletter since 2018, an experience that together with the rest of the skills aforementioned, made him the perfect candidate to join the EYES Newsletter Editorial Board.



## Karin Zibar Tomšić

Karin Zibar Tomšić (MD and PhD) is currently working at the Clinical Hospital Center Zagreb, in Croatia. She has contributed to several clinical and translational studies that have been published in indexed journals. Moreover, Dr Zibar Tomšić gained international experience by working during three months at Mayo Clinic in Rochester, USA. She has been actively involved as the Chair of the Croatian Section of Young Endocrinologists, where she works on various projects with the general aim of improving education in endocrinology, but also improving awareness of EYES and its activities. She has also been involved in moderating some of the articles in the newsletter of Croatian Medical Chamber. Dr Zibar Tomšić has contributed to the EYES Newsletter by writing articles and giving her feedback on several occasions. Her initiatives have created many new connections and ideas and facilitated new projects. All the skills aforementioned, together with her warm personality, high level of professionalism and experience, makes Dr Zibar Tomšić a perfect fit as a new Editorial Board member for the EYES Newsletter.



# Autumn is here – it is time to apply for EYES Observerships!

Autumn is here and it brings forward some important initiatives and news from the EYES Clinical Observership Programme (EYES C.O.P). One of our main missions is to provide new career and networking opportunities for early career investigators (ECI) across Europe. The EYES C.O.P allows ECIs to grow and learn during a month-long stay in various European endocrine centers of special interest.

For the season 2021/22 we have some very exciting news. Thanks to the strong support of the ESE Science Committee and Chair Professor Martin Fassnacht, ECIs doing basic or translational research are getting their own EYES Research Observership Programme (R.O.P) which will be launched together with the EYES C.O.P.

A great response to the first round of applications for the C.O.P in 2020 (26 applicants, 10 awarded Observerships, three funded by ESE and seven self-funded by participants) gave us the necessary boost of energy to keep working hard and continue believing that C.O.P and R.O.P are meant to become an integral part of ESE's support for members and development of the European endocrine community as a small but important step towards unification and standardisation of a pan-European endocrinological curriculum.

The start of the new season is also a perfect time to express our gratitude and mention some important names without whom it would not be possible for this project to come to life. This includes Ljiljana Marina, former EYES co-chair and the creator of the EYES Observership Programmes; Helen Gregson, the CEO of European Society of Endocrinology; Victoria Wither, ESE

Marketing and Sales Manager; Dr Ayse Zengin, former EYES Co-Chair; Lina Paschou and Eva Coopmans, current EYES co-chairs; and Daniele Santi, EYES committee member / the first EYES C.O.P pioneer; EYES committee members, Prof. Darko Kaštelan, former member of the ESE Education Committee as well as all EYES C.O.P mentors and ECI contact persons within our centers of special interest. We are very thankful for the positive feedback, energy, and support we have received and we are eagerly looking forward to the future of these Observership Programmes.

Applications for both programmes will open in November 2021. Application criteria and all necessary documents will be available on the EYES section of the ESE website ([www.es-e-hormones.org/eyes-cop](http://www.es-e-hormones.org/eyes-cop)) in October.

**Dr Antoan Stefan Šojat**

EYES Observership Programme Lead

EYES Committee member, EYES Newsletter Editor

## ECE 2022

21–24 May 2022  
Milan, Italy

[www.es-e-hormones.org/ece-2022](http://www.es-e-hormones.org/ece-2022)

## ECE 2022

### insights from the Early Career representative member on the ECE Programme Organising Committee

The first time you attend the Programme Organising Committee (POC) Meeting of a large Congress like the European Congress of Endocrinology (ECE) it is an exciting and impressive experience. The possibility of actively contributing to the organisation of an international congress of this magnitude could leave anyone unarmed at his/her first experience!

And if the first experience coincides with the organisation of the first in-person European congress after the COVID-19 pandemic, all these sensations are amplified. We have all lived through two difficult years – personal, work and sometimes health. We have all radically changed our habits and the way we organise scientific events. We have experienced virtual, online, impersonal events. Now, for the first time, finding ourselves talking again, organising a European-wide event to be held, finally, in person, makes the whole situation even more exciting. An early career member prepares his/herself for these encounters; prepares proposals, studies the topics to be presented, learns the names. But all this becomes complicated at the moment the POC meets.

Then the meeting begins and the dynamics of the discussions,

the experience of the participants, becomes difficult to follow, all the while seeing the scientific programme beginning to come to life. Participating in these meetings, seeing the experts working to create the best scientific programme, represents a unique opportunity to grow and learn from the experience of others. The day after the meeting, these experiences grown further within you and your daily work. This is one of the opportunities given to the EYES community. I am participating in the POC for ECE 2022 as the EYES representative. If you are an early career member, you should remember the EYES social life, the EYES activities, and the opportunities that EYES, through ESE, gives to you.

**Daniele Santi, Italy**



## ESE Focus Area:

# Environmental Endocrinology

In its White Paper, ([www.es-e-hormones.org/advocacy/eses-white-paper/](http://www.es-e-hormones.org/advocacy/eses-white-paper/)) presented during e-ECE2021, ESE identified Endocrine Disrupting Chemicals (EDCs) as one of its four key policy areas in relation to “Hormones in European Health Policies”. Extensive published scientific evidence demonstrates multiple adverse health outcomes associated or linked with exposure to EDCs and suspected to lead to various endocrine-related diseases. Therefore, endocrinologists have an important role in the core research around the impact of EDCs, especially in newborns and children, as well as the treatments and care that are needed to support these patients.

The ESE Environmental Endocrinology Focus Group represents the scientific contact team for questions, upcoming enquiries, requests for information related to EDCs and addressed to the ESE office as a contact point. Members of the group cover different areas of the wide endocrine spectrum and pursue EDC-related basic, translational, or clinical research funded at the national or EU level.

Many young endocrinologists are actively involved in EDC-related research projects, have personal interest in this topic or need to respond to their patients` questions on the medical relevance of EDC exposure and avoidance, a subject highly disputed by the media and the public. The Focus Group deals with these issues by preparing scientific statements (<https://www.es-e-hormones.org/focus-areas/environmental-endocrinology/>) or by participating in ESE-organised policy and advocacy activities in Brussels (e.g. the Annual Forum on Endocrine Disruptors). The Focus Group develops suggestions for EDC related symposia, sessions, Meet the Expert sessions, and speakers for the annual ECE Congress to the Programme Organising Committee. Considering this broad spectrum of activities, motivated and committed young endocrinologists are cordially invited to contribute their capabilities and expertise by joining our European team.

Recently, we contributed to the EU Green Week by raising interest for ESE and EDC-related issues via development of an infographic ([https://www.youtube.com/watch?v=Ymrxyd\\_z\\_Q&t=18s](https://www.youtube.com/watch?v=Ymrxyd_z_Q&t=18s)) linking endocrine disruptors to the EU objective of a zero toxic environment and our team member Aleksandra Buha presented a short video on EDC. An EDC-focussed ESE webinar series targeting the European/global endocrine community is on our agenda during the coming months. Currently, we are preparing our ESE contribution for the next public EU consultation (e.g. Revision of EU legislation on hazard classification and labelling and packaging of chemicals [CLP]) with a November deadline ([www.es-e-hormones.org/advocacy/eses-](http://www.es-e-hormones.org/advocacy/eses-)

[advocacy-activities/endocrine-disrupting-chemicals/](#)). With great support from Dirk de Rijdt, Mischa van Eimeren from the ESE office, and other colleagues over these past years, we successfully established contacts and continuous communication channels with the EU at the level of the commission (e.g. Commissioner V. Sinkevicius), DG Env and Health, several MEPs, their personal advisors, and office staff members. We began cooperation and exchange with EDC specialist groups in other endocrine-oriented societies and associations (ESPE, ETA amongst others) and have close interactions with the EU EDC Task Force of the Endocrine Society.

Currently, several EU-funded research clusters (e.g. EURION, <https://eurion-cluster.eu/>) intensively work on the development of new test methods and experimental models for EDC action. However, the majority of these researchers don't see themselves as “endocrinologists” (yet), but come from developmental

biology, classical toxicology, or biotechnology and are linked to those communities. This is of course a challenge but also a big opportunity to cross these ‘artificial barriers’ and join forces in a transdisciplinary way, leading to a strengthening of our endocrine community.



Josef Köhrle, Germany

**‘ESE White paper: “Addressing EDCs is a priority within the Green Deal, and the Chemical Strategy for Sustainability (CSS) presented by the EU Commission in October 2020 is a promising step. The call for a toxicfree environment and the commitments to investing in science and in chemicals that are safe and sustainable by design ...” require implementation now!**



# EnGiol meet EYES – strengthening the bonds

During the 41st National Congress of Italian Society of Endocrinology, held between 14-17 July in Rome, the EnGiol (Endocrinologia Giovane in Italia) community came together to meet again for the first time since the Covid pandemic.

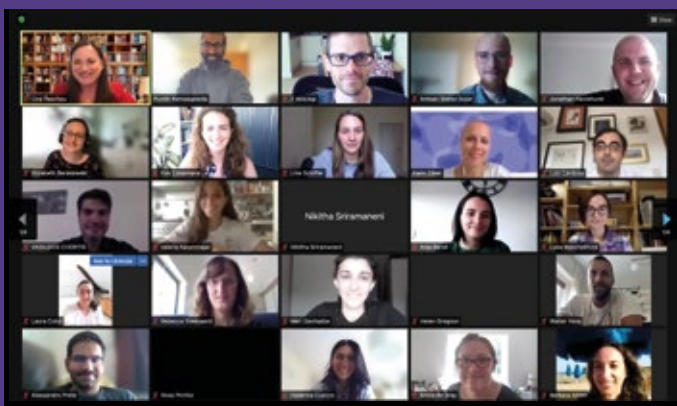
For the first time ever, EYES participated in the dedicated Symposium “EnGiol meets EYES” during which the EYES Co-Chair Eva Coopmans presented the preliminary results of an original study on the role of ketogenic diet in the management of acromegalic patients, with great success among the delegates. During the session, other speakers had the chance to present their original work, with a full attendance throughout the event. This first international experience for EnGiol confirms the strong importance for this young group to keep in tight contact with the community of EYES and ESE, opening the way to similar initiatives to become part of regular local meetings. The precious opportunity to keep a dedicated “window” in the future for the international community to take part of national events is indeed crucial for EnGiol, either to help promote mutual positive influence and develop a strong network across young researchers as well as to encourage Italian young scientist to compare with a highly competitive scientific environment.



Walter Vena, Italy



Coffee Connections – a new EYES initiative, which started at the end of 2020 and has already become popular within the EYES community. During these monthly (every second Friday afternoon) meetings the most relevant “non-scientific” topics, such as publications, grant applications, international collaborations are discussed in a relaxed and friendly atmosphere among early and mid-careers peers.



The upcoming Coffee Connection “Publish or perish – importance of research output” will be held on 8 October. The time has been changed to 14.00-15.00 CEST after getting participants feedback via poll, to make it more convenient for everyone.

The topic for the November meeting was chosen through a poll on the EYES Facebook page, and it will be “How to successfully gain research funding”.

So, bring your colleagues and friends, make yourself a nice cup of coffee/tea and join us for the next Coffee Connection!

Register (FREE!) at:  
[www.eese-hormones.org/eyes-coffee-connections](http://www.eese-hormones.org/eyes-coffee-connections)



# Latest research

## Differential impact of osteoporosis, sarcopenia and obesity on physical performance in aging men

The analysis sought to identify relationships between various aspects of musculoskeletal health (prevalence of osteoporosis, sarcopenia, and obesity) and markers for physical function – as assessed by the Short Physical Performance Battery and a hand grip strength test. The age-related declines in physical function were substantial. The analysis of around 500 men aged 65–90 noted yearly declines of 1.54%, 1.38%, and 1.52% to chair rise capacity, gait speed, and hand grip strength, respectively. There was an inverse correlation between obesity and physical function; however,

it remains unclear whether high BMIs are causing functional decline or a high BMI is simply another indication of insufficient levels of physical activity leading to a decline in performance.

Genest F., Schneider M., Zehnder A., Lieberoth-Leden D., Seefried L. (2021). Differential impact of osteoporosis, sarcopenia and obesity on physical performance in aging men. *Endocrine Connections*, **10(3)**, 256–264.

## Chronic social stress lessens the metabolic effects induced by a high-fat diet

Associations between stress and modulation of metabolism have previously been established. Jene et al. sought to establish how a high fat diet interacts with chronic social defeat in mice. Chronically stressed mice and controls were placed under 3 conditions: standard diet; standard diet with high fat diet post-stress; and high-fat diet throughout. The results appear to suggest that chronic social defeat reduced the metabolic dysregulation associated with a high-fat diet. For example, in non-stressed mice both high-fat diet protocols increased glucose levels; whereas,

in stressed mice they did not. The results suggest that there may be a desirable impact from a high-fat diet during stressful periods, possibly decreasing stress-induced metabolic demands.

Jene T., Ruiz de Azua L., Hasch A., Klüpfel J., Deuster J., Maas M., Nijboer CH., Lutz B., Müller MB., van der Kooji MA. (2021). Chronic social stress lessens the metabolic effects induced by a high-fat diet. *Journal of Endocrinology*, **249(1)**, 19.30.

## Microbial and nutritional influence on endocrine control of growth

This review by De Vadder, Joly, and Leulier intended to build upon the existing understanding of children suffering from undernutrition and consequent stunting by investigating the current research around the interactions with altered microbiota. The authors end by highlighting how gut microbiota interact with both nutrition and the growth hormone/insulin-like growth factor-1 axis. Though note that there is currently insufficient research to state how these relationships impact systemic growth.

The team also suggest further research into the use of microbiota-targeting therapies to promote growth reestablishment in children whose growth has been stunted due to undernutrition.

De Vadder F., Joly A., Leulier F. (2021). Microbial and nutritional influence on endocrine control of growth. *Journal of Molecular Endocrinology*, **66(3)**, R67–R73.

## Hypoglycemia after bariatric surgery: importance of exhaustive hormonal study

This case report looks at the developments in a 50-year-old woman who presented with symptomatic hypoglycemia 1 year after sleeve gastrectomy surgery to treat morbid obesity. Hypoglycemic episodes typically occurred either fasting or after meals – glucose levels were frequently 50–60 mg/dL, sometimes as low as 40 mg/dL, and at least one episode which led to a loss of consciousness. Although hypoglycemia is a rare problem in patients post-bariatric surgery, cases have been previously noted as complications. The

team initially sought to treat the patient with acarbose; however, this proved unsuccessful. Following this, laboratory results indicated a deficiency in growth hormone. Within 3 months of treatment with growth hormone, the patient's symptoms were resolved.

Perez-Montes de Oca A., Pellitero S., Puig-Domingo M. (2021). Hypoglycemia after bariatric surgery: importance of exhaustive hormonal study. *Diabetes & Metabolism Case Reports*, **2021**, 20–0131.

## Risk of bone fractures after the diagnosis of adrenal adenomas: a population-based cohort study

This study is based on findings from previous smaller studies which reported on increased prevalence and incidence of asymptomatic vertebral fractures in patients with non-functioning adrenal adenomas. The researchers used data from 1004 patients with adrenal adenoma in Minnesota, USA between 1995 and 2017. At diagnosis, patients had higher prevalence of previous fractures at any site (47.9% and 41.3%, respectively), vertebral fracture (6.4% and 3.6%, respectively), and combined osteoporotic sites (16.6% and 13.3%, respectively) than age and sex matched subjects. After a median follow-up of 6.8 years, the adenoma patients had a hazard

ratio of 1.27 (95% CI 1.07, 1.52) for developing a new fracture compared to the age and sex matched subjects.

Li D., Kaur RJ., Zhang CD., Ebbehøj A., Singh S., Atkinson EJ., Achenback SJ., Rocca W., Khosla S., Bancos I. (2021). Risk of bone fractures after the diagnosis of adrenal adenomas: a population-based cohort study. *European Journal of Endocrinology*, **184(4)**, 597–606.