

The Lord is like a strong tower, where the righteous can go and be safe.

Proverbs 18:10

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DIYARYO KABITENYO

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Be alert, stand firm in the faith, be brave, be strong.

1 Corinthians 16:13

Cavite malls close entrances at 4PM

Malls in the province of Cavite close one hour earlier at 4 p.m.

An executive

in the order signed by Governor Jonvic C. Remulla last March 30 provided guidelines for the operation of malls within the province during the Enhanced Community Quarantine (ECQ).

Under the guidelines, patrons will be allowed entry to malls from 8 a.m. to 4 p.m. The management must ensure that no patrons are left inside

premises by 5 p.m. Each patron is given a maximum of one hour inside the mall, except for supermarkets where no time limit is imposed. The order also mandates malls to have a priority lane for front-line workers.

Only establishments allowed by the Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF) can operate inside the malls. These include grocery stores and pharmacies, restaurants for takeout

and delivery, banks, logistics service providers, clinics, business processing outsourcing establishments, telecommunications, financial service providers, printing establishments and machinery and equipment repair

Turn to page 2



Mayor Nelia Bencito Angeles (Facebook)

Gen. Emilio Aguinaldo mayor contracts COVID-19

Mayor Nelia Bencito Angeles announced last April 1 that she tested positive for the coronavirus disease (COVID-19).

In a Facebook post, Angeles said her swab test result was released on March 31. Despite the development, she assured her constituents that the municipality's Rural Health Unit is doing everything it can to help curb the spread of the virus.

She also called on her constituents to stay at home and obey community quarantine protocols to avoid infection.

DIYARYO KABITENYO

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Publisher - Editor

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Operations Manager

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PAPI

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Friends and enemies 'make sense' for long-lived animals

It makes evolutionary sense for long-lived animals to have complex social relationships — such as friends and enemies — researchers say.

Some species and individuals focus their energy on reproduction (live fast, die young), while "slow-living" animals prioritize survival and tend to live longer lives.

In the new paper, University of Ex-

eter scientists argue that natural selection favours complex social structures among social animals — meaning that knowing their friends and enemies is easier for animals with longer lifespans, and helps them live even longer.

Meanwhile, fast-lived species should only bother with such social relationships if it increases their chances of reproduction.

Type of glaucoma linked to increased risk of cognitive impairment

A type of glaucoma called normal-tension glaucoma is associated with an increased risk of cognitive impairment and possibly dementia, research published online in the British Journal of Ophthalmology.

Glaucoma is a condition in which the optic nerve becomes damaged and this can eventually lead to blindness. In most types of glaucoma, the damage is caused by a build-up of pressure in the eye, but this is not the case with normal-tension glaucoma.

Primary open angle glaucoma and dementia have been linked in some previous studies, but not all studies have found this association.

(CAVITE, from page 1)
and maintenance. Persons below 18 and above 65 years old are not allowed inside mall premises, as well

low-tension glaucoma or normal-tension glaucoma (NTG), where the pressure in the eye is not raised above normal levels, but also high-tension glaucoma (HTG), where pressure in the eye is high. Normal-tension glaucoma is more common in Asia, while high-tension glaucoma is more common in Europe.

Two of the studies which showed a link between primary open angle glaucoma and dementia included lots of people with Asian ethnicity. This led the authors

as pregnant women and people with comorbidities and health risks. Malls are also not allowed to play music and are tasked to implement social distancing and a one-way flow of customers.

to wonder whether it may be specifically normal-tension glaucoma that is linked to cognitive impairment and dementia.

To investigate, they used the Australian and New Zealand Registry of Advanced Glaucoma to randomly select 248 patients aged at least 65 years who had normal-tension glaucoma, and these were matched by age and sex with 349 patients with high-tension glaucoma.

All patients were invited to participate in a health questionnaire and cognitive assessment over the telephone. A total of 290 patients — 144 with normal-tension glaucoma and 146 with high-tension glaucoma — had the cognitive screen.

**EXTRAJUDICIAL SETTLEMENT OF ESTATE
WITH DEED OF ABSOLUTE SALE**

NOTICE is hereby given that the estate of the late **ALMARIO GATDULA SENERIS and NIEVES CATURAY SENERIS** who both died intestate on November 26, 2009, at New Era, Quezon City and on February 28, 2012 at Cavite City, respectively, consisting of a parcel of land with improvements found therein, located at Amaro Soriano St., Brgy. 22 (LFO), Cavite City, covered by OCT No. O-12, containing an area of One Hundred Seventy Nine (179) Square Meters, has been adjudicated and extrajudicially settled by and among their heirs in equal shares, that further, fit and in consideration of the sum of FIVE HUNDRED THOUSAND (P500,000.00), Philippine Currency, they do hereby SELL, CONVEY, and TRANSFER by way of DEED OF ABSOLUTE SALE unto ARDIE PAPA CAMPUSPOS, his heirs and assigns all their interests in the parcel of land described above on October 5, 2020 at Cavite City, Philippines before Notary Public Atty. Sital V. Aghnag and entered in her Notarial Register as Doc. No. 1075; Page No. 94, Book No. 4, Series of 2020.

(Sgd.) Heirs/Vendors and Vendee With Marital Consent

Publication: DIYARYO KABITENYO
Date: March 22, 29 and April 5, 2021.

**EXTRA JUDICIAL SETTLEMENT
OF ESTATE WITH DEED OF ABSOLUTE SALE**

NOTICE is hereby given that the estate of the deceased **TERESITA A. IGNACIO and AURELIO B. IGNACIO JR.** who both died intestate on September 8, 2017 and on March 14, 2011 respectively, and **ALVIN B. IGNACIO** who died intestate on September 19, 2019, all in Cavite City, consisting of a parcel of land with improvements therein, situated at Cavite City, covered by Transfer Certificate of Title No. T-237766 of the Register of Deeds for the Province of Cavite, containing an area of ONE HUNDRED EIGHTY (180) SQUARE METERS, more or less, has been adjudicated and extrajudicially settled by and among their heirs equally, that, fit and in consideration of the sum of EIGHT HUNDRED THOUSAND PESOS (P800,000.00) Philippine Currency, they do hereby SELL, TRANSFER AND CONVEY unto SPOUSES CHRISTINE GAY R. ESCORPIO & RAMON S. ESCORPIO JR., and their minor child, RAMONSEL JANINE RIVERA ESCORPIO, their heirs and assigns, all their rights, interest and participation in the above described property on February 25, 2021 at Cavite City before Notary Public Atty. Sital V. Aghnag and entered in her Notarial Register as Doc. No. 6028; Page No. 6, Book No. 7, Series of 2021.

(Sgd.) All Heirs

Publication: DIYARYO KABITENYO
Date: March 22, 29 and April 5, 2021.

**ADDENDUM TO DEED OF SOLE ADJUDICATION
OF ESTATE OF THE DECEASED
JUANCHO BALINGIT DELA CRUZ**

NOTICE is hereby given that on March 8, 2021, **LEONILA B. DELA CRUZ** executed a "Deed of Sole Adjudication of Estate of the Deceased **JUANCHO BALINGIT DELA CRUZ**" before Notary Public Atty. Carlos Emmanuel C. Morroya of Tinas City, Cavite docketed as Doc. No. 45, Page No. 9, Book No. V, Series of 2021 covering two (2) properties as indicated on the said document.

That, however, there is one (1) more property that was not included in the said document due to her inadvertence or honest mistake brought about by grief and sorrow for passing of her husband.

That the property subject of this Addendum is covered by Transfer Certificate of Title No. T-685185 of the Register of Deeds for Cavite Province (with improvements) described as follows:

A PARCEL OF LAND situated in the barrio of BUKANDALA, municipality of IMUS, province of CAVITE, Island of LUZON, containing an area of SEVENTY SIX (76) SQUARE METERS

That she hereby adjudicates unto herself extrajudicially the above-described property being the only surviving spouse of the deceased Juancho Balingit dela Cruz pursuant to Sec. 1, Rule 74 of the Rules of Court and subject to the 2-year lien under Sec. 4, Rule 74 on March 12, 2021 at the City of Imus, Cavite before Notary Public Atty. Carlos Emmanuel C. Morroya and entered in his Notarial Register as Doc. No. 193, Page No. 29, Book No. V, Series of 2021.

(Sgd.) **LEONILA B. DELA CRUZ**

Publication: DIYARYO KABITENYO
Date: March 22, 29 and April 5, 2021.

Scientists develop test to detect the virus that causes COVID-19 even when it mutates

A team of scientists led by Nanyang Technological University, Singapore (NTU Singapore) has developed a diagnostic test that can detect the virus that causes COVID-19 even after it has gone through mutations.

Called the VaN-Guard (Variant Nucleotide Guard) test, it makes use of a gene-editing tool known as CRISPR, which is used widely in scientific re-

search to alter DNA sequences and modify gene function in human cells under lab conditions, and more recently, in diagnostic applications.

Since viruses have the ability to evolve over time, a diagnostic test robust against potential mutations is a crucial tool for tracking and fighting the pandemic. Over its course so far, thousands of variants of SARS-CoV-2, the virus

that causes COVID-19, widely in the United Kingdom, South Africa, and Brazil.

**REPUBLIC OF THE PHILIPPINES
REGIONAL TRIAL COURT
FOURTH JUDICIAL REGION
BRANCH 23
Trece Martires City**

**IN RE: PETITION FOR CORRECTION
OF TECHNICAL DESCRIPTION IN
TRANSFER CERTIFICATE OF TITLE
NOS. T-1196804 AND T-1196805**

**ACM PROPERTY VENTURES INC.,
REPRESENTED BY JOSE NINO
GOMEZ**

Petitioner

LRC CASE NO. 2964-075-15A

vs.

**REGISTRY OF DEEDS FOR THE
PROVINCE OF CAVITE**

Respondent

ORDER

A verified petition for correction of technical description of Transfer Certificate of Title Nos. T-1196804 and T-1196805, in the name of registered owner, was filed by petitioner.

Finding the aforementioned petition to be sufficient in form and substance, the same is hereby set for oral hearing on **May 20, 2021 at 8:30 in the morning**, where any and/or all parties interested may oppose the said petition.

Let copy of this Order be published at least once a week for three (3) consecutive weeks in a newspaper of general circulation within the Province of Cavite at the expense of the petitioner and be posted at the Bulletin Board of Government Center Building, Trece Martires City, Public Market, Municipal and Barangay Hall, where the property is situated as well as on the land itself located at Barangay of Navero, Municipality of Gen. Triun, Province of Cavite, and other copies together with the petition be furnished the Register of Deeds for the Province of Cavite, Office of the Land Registration Authority, Office of the Land Management Bureau, Office of the Solicitor General, petitioner and its counsel.

In view thereof, the petitioner or his/her duly authorized representative is hereby directed to immediately coordinate with the sheriff of this Court as regards the posting of this Order on the land which is the subject of this petition.

SO ORDERED.

Trece Martires City, March 5, 2021.

(Sgd.) **PURIFICACION A. BARING TUYERA**
Presiding Judge

Copy Furnished:

Atty. Maca Ines C. Tigle
4th Floor, CSI Building, 101 Aguirre St.,
Laguna Village, Makati City 1229

ACM PROPERTY VENTURES INC.,
c/o JOSE NINO GOMEZ,
5th CSI Building, 101 Aguirre St.,
Laguna Village, Makati City 1229

Register of Deeds for the Province of Cavite
Capital Site, Trece Martires City, Cavite 4109

Office of the Solicitor General
134 Amorsolo St., Laguna Vill.,
Makati City 1229

Office of the Land Registration Authority
LRA Bldg., East Ave., Diliman, Quezon City 1101

Office of the Land Management Bureau
800 P.H. E Building Quezon Ave.,
Barangay Palangpagan, Quezon City 1111

Publication: DIYARYO KABITENYO
Date: March 29, April 5 & 12, 2021

**DEED OF EXTRA JUDICIAL SETTLEMENT
OF THE ESTATE OF DECEASED
ROSALIA A. QUIRANTE**

NOTICE is hereby given that the estate of the late **ROSALIA A. QUIRANTE** who died testate on May 4, 2019 at Las Piñas City, consisting of One (1) parcel of land located at City of Dasmarinas, Province of Cavite, with improvements thereon, containing an area of TWO HUNDRED (200) SQUARE METERS, and covered by TCT No. T-994/04 of the Register of Deeds for the Province of Cavite has been adjudicated and extra-judicially settled by and among her heirs in pro indiviso or in equal shares on March 1, 2021 at Tagaytay City, Cavite, Philippines before Notary Public Atty. Valentin C. Guanio and entered in his Notarial Register as Doc. No. 139, Page No. 29; CLXXIX, Series of 2021.

(Sgd.) All Heirs

Publication: DIYARYO KABITENYO
Date: March 29, April 5 & 12, 2021

Fasting can be an effective way to start a diet

One in four Germans suffers from metabolic syndrome. Several of four diseases of affluence occur at the same time in this 'deadly quartet': obesity, high blood pressure, lipid metabolism disorder and diabetes mellitus. Each of these is a risk factor for severe cardiovascular conditions, such as heart attack and stroke. Treatment aims to help patients lose weight and normalise their lipid and carbohydrate metabolism and blood pressure. In addition to exercise, doctors prescribe a low-calorie and healthy diet. Medication is often also required. However, it is not fully clear what effects nutrition has on the microbiome, immune system and health.

A research group led by Dr Sofia Forslund and Professor Dominik N. Müller from the Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC) and the Experimental and Clinical Research Center (ECRC) has now examined the effect a change of diet has on people with meta-

**DEED OF EXTRAJUDICIAL SETTLEMENT,
PARTITION AND
ADJUDICATION OF THE ESTATES OF
FRUDENCIO A. PAKINGAN**

NOTICE is hereby given that the estate of the deceased **FRUDENCIO A. PAKINGAN** who died testate on January 13, 2014 at Pasong Baya 1, City of Imus, Cavite, consisting of two (2) parcels of land without improvements erected thereon, both located at Pasong Baya 1 City of Imus, Cavite, more particularly described as follows:

Transfer Certificate of Title No. T-832217

A parcel of land containing an area of TWO HUNDRED-FORTY SIX (246) SQUARE METERS, more or less;

Transfer Certificate of Title No. T-925154

A parcel of land containing an area of ONE HUNDRED FORTY SEVEN (147) SQUARE METERS, more or less, has been adjudicated and extra-judicially settled by and among his heirs in equal share, pro indiviso on March 23, 2021 at Imus, Cavite before Notary Public Atty. Gabriel B. Octava and entered in his Notarial Register as Doc. No. 98, Page No. 20; Book No. VII, Series of 2021.

(Sgd.) Surviving Spouse and Surviving Children
with conformity of spouses

Publication: DIYARYO KABITENYO
Date: March 29, April 5 & 12, 2021

**DEED OF EXTRA JUDICIAL SETTLEMENT
OF THE ESTATE OF BRENDA D. DOMINGO
WITH WAIVER OF RIGHTS**

NOTICE is hereby given that the estate of the late **BRENDA D. DOMINGO** who died intestate on November 4, 2003 at Burnaby, British Columbia Canada, consisting of one-half (1/2) undivided conjugal share in a parcel of land situated in the Brgy. of Salomon, Mun. of Dasmarinas, Prov. of Cavite, covered by Transfer Certificate of Title No. T-1011094, Cavite, containing an area of ONE HUNDRED-FORTY (140) SQUARE METERS has been adjudicated and extra-judicially settled by and between her heirs in equal shares with waiver of rights, participation and interest over the subject property in favor of **BERNARD P. DOMINGO** on September 16, 2020 at Tagaytay City, Cavite, Philippines before Notary Public Atty. Valentin C. Guanio and entered in his Notarial Register as Doc. No. 143; Page No. 36; Book No. CLXXIII, Series of 2020.

(Sgd.) Both Heirs

Publication: DIYARYO KABITENYO
Date: March 29, April 5 & 12, 2021

metabolic syndrome. The uel Hospital Berlin ECRC is jointly run by and Endowed Chair the MDC and Charité of Clinical Naturopathy at the Institute for Universitätsmedizin Berlin. "Switching to a healthy diet has a positive effect on blood pressure," says Andras Maifeld, summarising the results. "If the diet is preceded by a fast, this effect is intensified." Maifeld is the first author of the paper, which was recently published in the journal Nature Communications.

Dr Andreas Michalsen, Senior Consultant of the Naturopathy Department at Imman-

lued the DASH (Dietary Approach to Stop Hypertension) the fast, whereas the diet for three months, adaptive immune system shuts down," explains Maifeld. During this process, the number of proinflammatory T cells drops, while regulatory T cells multiply.

The researchers used stool samples to examine the effects of the fast on the gut microbiome. Gut bacteria work in close contact with the immune system. Some strains of bacteria metabolise dietary fibre into anti-inflammatory short-chain fatty acids that benefit the immune system.

innate immune system remains stable during the fast, whereas the adaptive immune system shuts down," explains Maifeld. During this process, the number of proinflammatory T cells drops, while regulatory T cells multiply.

The researchers used stool samples to examine the effects of the fast on the gut microbiome. Gut bacteria work in close contact with the immune system. Some strains of bacteria metabolise dietary fibre into anti-inflammatory short-chain fatty acids that benefit the immune system.

On the basis of immunophenotyping, the scientists observed how the immune cells of the volunteers changed when they altered their diet. "The

Cardiorespiratory fitness improves grades at school

Recent studies indicate a link between children's cardiorespiratory fitness and their school performance: the more athletic they are, the better their marks in the main subjects -- French and mathematics. Similarly, cardiorespiratory fitness is known to benefit cognitive abilities, such as memory and attention. But what is the real influence of such fitness on school results? To answer this question, researchers at the University of Geneva (UNIGE), Switzerland tested pupils from eight Geneva schools. Their results, published in the journal *Medicine & Science in Sport & Exercise*, show that there is an indirect link with cardiorespiratory fitness influencing cognitive abilities, which in turn, influence school results.

Charles Hillman, a professor at Northeastern University in Boston and co-author of this study, has suggested in previous research that there is a link between children's cardiorespiratory fitness and their academic performance, as well as a beneficial effect of cardiorespiratory fitness on executive functions. "There are three main executive functions," explains Marc Yangüez, a researcher at the UNIGE's Faculty of Psychology and Educational Sciences (FPSE) and first author of the study. "The first is inhibition, i.e., our ability to inhibit intrusive or irrelevant behaviour or thoughts. The second is cognitive flexibility, which often called multitasking, and refers to our ability to move between tasks or responses based on task demands. Finally, the third is working memory, which is our ability to maintain information in our minds and manipulate it."

However, the link between fitness and academic skills does not seem obvious at first sight. This is why researchers at the UNIGE wanted to analyze it and observe how one influences the other and whether a specific cognitive process plays a predominant role.

The Geneva investigators teamed up with eight schools in the canton of Geneva to conduct cognitive and physical tests on 193 pupils aged 8 to 12. First of all, children took a physical test known as the "shuttle run test": the children had to run back and forth between two lines 20 meters apart at an increasingly fast pace. "Combined with height, weight, age and sex, this test allows us to assess the child's cardiovascular fitness," says Marc Yangüez. "Following this, we used nine tasks that allow us to assess children's abilities in the three main executive functions -- inhibition, cognitive flexibility and working memory -- and we measured different indicators such as the precision and speed of their responses," explains Julien Chantal, researcher at the FPSE of the UNIGE. For example, one of the tests of inhibition presents students with images of fish swimming. The central fish can either swim in the same direction as the others or in the opposite direction. The students have to indicate as quickly and accurately as possible the direction in which the central fish is swimming when they are only shown the picture for 200 milliseconds. To measure cognitive flexibility, the students took three tests as well, one of the tests asked the students to connect in ascending order numbers and letters (1-A-2-B-3-C, etc.). In one of the working memory tests, the students had to memorize a sequence of numbers, such as 2 6 4 9 7, and then repeat them in the reverse order. In addition, at the end of the year, the teachers, with the parents' consent, transmitted the students' marks for the three terms of the year in mathematics, French 1 (comprehension and expression of text) and French 2 (grammar, spelling and vocabulary).

By combining the data obtained, the psychologists found that there was a link between better cardiorespiratory fitness and higher marks in mathematics and French 2. French 1 is probably less directly concerned, because the evaluation of the text and the writing depend more on subjective factors, which is less the case for mathematics or grammar, for which there is little subjectivity in the right or wrong answers," explains Marc Yangüez. In addition to the existence of a link between cardiorespiratory fitness and school results, the data obtained also confirm a link between cardiorespiratory fitness and executive functions. But does good cardiorespiratory fitness affect academic performance directly or indirectly through executive functions?

Open-label placebo works as well as double-blind placebo in irritable bowel syndrome

For decades, the power of the placebo effect was thought to lie in patients' belief that they were – or at least, could be – receiving a pharmacologically active treatment. A new study by physician-researchers at Beth Israel Deaconess Medical Center (BIDMC) suggests that patients don't need to be deceived to receive benefit from treatment with placebo.

In a randomized clinical trial published in the journal *PAIN*, researchers found participants with moderate to severe irritable bowel syndrome (IBS) who were knowingly treated with a pharmacologically inactive pill – referred to as an honest or open-label placebo – reported clinically meaningful

improvements in their IBS symptoms. People who received the open-label placebo experienced improvements that were significantly greater than those reported by participants assigned to a no-pill control group. There was no difference in symptom improvement between those who received open-label or double-blind placebos. The results build on the research team's previous findings and challenge the long-held notion that concealment or deception are key elements in the placebo effect.

"The clinical response to open-label placebo in this six-week trial was high, with 69 percent of participants who received open-label placebo

reporting a clinically meaningful improvement in their symptoms," said first and corresponding author Anthony J. Lembo, MD, Professor of Medicine in the Division of Gastroenterology at BIDMC. "IBS is one of the most common reasons for healthcare consultations and absenteeism from work or school. Effective treatment options for IBS are limited, and we hypothesized it may be possible to ethically harness the placebo effect for clinical benefit."

For the rigorously designed clinical trial, researchers enrolled 262 adult participants, 18 to 80 years old with at least moderately severe irritable bowel syndrome, as measured by the validated

IBS-Severity Scoring System (IBS-SSS), which measures frequency and severity of abdominal pain and distention, quality of life and other relevant factors across a scale of 0-500. Participants were examined, filled out baseline questionnaires and were randomized into one of three study arms: open-label placebo; double-blind (which included double-blind placebo or double-blind peppermint oil); or no-pill control. During their examinations, all participants discussed the placebo effect, the trial and its aims with their physicians.

The open-label group received pill bottles labeled "open-label placebo," and were told that the

pill inside were pharmacologically inert, but could make them feel better through the placebo effect. The double-blind group received pill bottles labeled "double-blind placebo or peppermint oil." Participants in the double-blind group received either a placebo or an identical pill containing peppermint oil, but neither they nor the research team knew which they received. All participants who received pills were instructed to take one pill three times a day, 30 minutes before meals. The no-pill control group received no pills but otherwise followed identical study protocol. During return visits three and six weeks into the study, all participants completed questionnaires,

were verbally asked about adverse events and briefly met with a study physician.

Lembo and colleagues – including senior author, Ted J. Kaptchuk, Director of the Program in Placebo Studies and the Therapeutic Encounter at BIDMC – found that improvement in IBS-SSS scores from baseline to the six-week endpoint was significantly greater in the open-label placebo group compared to the no-pill control group. Additionally, participants in the double-blind placebo group also saw superior symptom improvement compared to the no-pill control group, but the double-blind and open-label groups were not different from each other.

Selenium supplementation protects against obesity and may extend lifespan

Adding the nutrient selenium to diets protects against obesity and provides metabolic benefits to mice, according to a study published March 30, 2021 in *eLife*.

The results could lead to interventions that reproduce many of the anti-aging effects associated with dietary restriction while also allowing people to eat as normal.

Several types of diet have been shown to increase healthspan — that is, the period of healthy lifespan. One of the proven methods of increasing healthspan in many organisms, including non-human mammals, is to restrict dietary intake of an amino acid called methionine.

Recent studies have suggested that

the effects of methionine restriction on healthspan are likely to be conserved in humans. Although it might be feasible for some people to practice methionine

restriction, for example, by adhering to a vegan diet, such a diet might not be practical or desirable for everyone. In the current study, a research team from the Oretsch Foundation for the Advancement of Science (OFAS), Cold

Spring, New York, US, aimed to develop an intervention that produces the same effects as methionine restriction, while also allowing an individual to eat a normal, unrestricted diet.

An important clue for developing such a treatment is that me-

thionine restriction causes a decrease in the amounts of an energy-regulating hormone called IGF-1. If a treatment could be found that causes a similar decrease

in IGF-1, this might also have beneficial effects on healthspan. Previous research has shown that selenium supplementation reduces the levels of circulating IGF-1 in rats, suggesting that this could be an ideal candidate.

The team first studied whether selenium supplementation offered the same protection against obesity as methionine restriction. They fed young male and older female mice one of three high-fat diets: a control diet contain-

ing typical amounts of

methionine, a methionine-restricted diet, and a diet containing typical amounts of methionine as well as a source of selenium. For both male and female mice of any age, the authors found that selenium supplementation completely

protected against the dramatic weight gain and fat accumulation seen in mice fed the control diet, and to the same extent as restricting methionine.

Next, they explored the effects of the three diets on physiological changes normally associated with methionine restriction. To do this, they measured the amounts of four metabolic markers in blood samples from the previously treated mice. As hoped, they found

dramatically reduced levels of IGF-1 in both male and female mice. They also saw reductions in the levels of the hormone leptin, which controls food intake and energy expenditure. Their results indicate that selenium supplementation produces most, if not all, of the hallmarks of methionine restriction, which suggests that this intervention may have a similar positive effect on healthspan.

To gain insight into the beneficial effects of selenium supplementation, the researchers used a different organism — yeast. The two most widely used measurements of healthspan in yeast are chronological lifespan, which tells us how long dormant yeast remain

viable, and replicative lifespan, which measures the number of times a yeast cell can produce new offspring. The team previously showed that methionine restriction increases the chronological lifespan of yeast, so they tested whether selenium supplementation might do the same.

As it turned out, yeast grown under selenium-supplemented conditions had a 62% longer chronological lifespan (from 13 days to 21 days) and a replicative lifespan extended by nine generations — as compared with controls. This demonstrates that supplementing yeast with selenium produces benefits to healthspan detectable by multiple tests of cell aging.

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Cancer drug lessens the toxicity of a protein from COVID-19 virus

University of Maryland School of Medicine (UMSOM) researchers have identified the most toxic proteins made by SARS-COV-2 – the virus that causes COVID-19 – and then used an FDA-approved cancer drug to blunt the viral protein's detrimental effects. In their experiments in fruit flies and human cell lines, the team discovered the cell process that the virus hijacks, illuminating new potential candidate drugs that could be tested for treating severe COVID-19 disease patients. Their findings were published in two studies simultaneously on March XX in *Cell* & *Nature*.

"Our work suggests there is a way to prevent SARS-COV-2 from injuring the body's tissues and causing extensive damage," says senior author of the study Zhe "Zion" Han, PhD, Associate Professor of Medicine and Director of the Center for Precision Disease Modeling at UMSOM. He notes that the most effective drug against Covid-19, remdesivir, only prevents the virus from making more copies of itself, but it does not protect already infected cells from damage caused by the viral proteins.

Prior to the pandemic, Dr. Han had been using fruit flies as a model to study other viruses, such as HIV and Zika. He says his research group shifted gears in February 2020 when it was clear that the pandemic was going to significantly impact the U.S.

Kids' metabolic health can be improved with exercise during pregnancy: here's why

A mechanism has been identified that explains how physical exercise in pregnancy confers metabolic health benefits in offspring. According to researchers, the key lies with a protein called SOD3, vitamin D and adequate exercise, with the outcome possibly forming the first steps to designing rational diet and exercise programs to use during pregnancy and particularly when mothers may also be overweight or obese.

The study, which was led by authors from the Joslin Diabetes Center at the Harvard Medical School and colleagues from Japan, the US, Canada and Denmark, has been published online by *Cell Metabolism*.

"We've known for a while that risks for obesity and type 2 diabetes can originate in the critical prenatal developmental period," said senior author Laurie Goodyear. "In particular, there is a real concern that the increasing levels of obesity seen in women of reproductive age will transmit disease risk to subsequent generations. It's important to understand that if this is not alleviated, rates of diabetes and obesity will only continue to grow in the coming years."

Many previous studies have linked increased maternal body weight and unhealthy diets to poorer metabolic outcomes in offspring, often many years later. Understanding the mechanisms of how maternal exercise can reverse these effects might lead to interventions that prevent these diseases transmitting across generations, say the authors of the study.

"The findings offer an explanation as to why physical exercise during pregnancy may have metabolic benefits for offspring as they get older," said Goodyear. "We show how physical exercise during pregnancy, in combination with adequate vitamin D levels, enhances levels of a placenta-derived protein called SOD3 (superoxide dismutase 3), and that via a number of intermediate steps, this improves glucose tolerance in offspring."

The findings come from a series of investigations with pregnant mice, comparing groups exposed to voluntary wheel running (i.e., exercise) and groups that were sedentary. Using various techniques, the authors carefully investigated the effects of exercise on parameters such as DNA methylation, cell signaling and gene expression, particularly in relation to glucose metabolism.