The Lord is like a strong tower, where the righteous can go and be safe.
Proverbs 18:10

DIYARYO KABITENYO
Nagmamalasakit sa lalawigan

Be alert, stand firm in the faith, be brave, be strong.
1 Corinthians 16:13

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Vol. 23 No. 6 | March 30-April 5, 2020 | P 10.00

Imus addresses transport, financial dilemma under ECQ

IMUS CITY, Cavite – Imus City Mayor Emmanuel Maliksi together with officials of concerned offices outlined a program for transportation, food, health and other concerns to address issues that cropped up in the implementation of enhanced community quarantine (ECQ) in the city.

Different problems arose from the implementation of the ECQ, particularly with the suspension of mass transportation and the lockdown of the cities and municipalities with hundreds of commuters returning home from work or going to work in the south were stranded.

The threat of the COVID-19 contagion did not deter the people from leaving their homes because the necessary workers were more concerned with their livelihood rather than their safety and continued to go out to report for work.

A controlled transport system was implemented with accredited vehicles to provide transport service to travelers to bring them to public markets, supermarkets, hospitals, pharmacies, banks and to place of work within the city. Point-to-point vehicles will also be provided for transport service outside of the city.

In coordination with the City Social Welfare and Development Office (CSWDO), sanitary, medical and food supplies were distributed to the indigent families especially those families of employees affected by the ECQ. The Market Office and Slaughterhouse assured enough food supply for the city residents' consumption including delivery of essential goods.

Garbage collection goes on as scheduled in coordination with the City Environment and Natural Resources Office (CENRO) while regular morning and disinfection especially in public markets and churches will be conducted.

Total lockdown tightens security in the province

TRECE MARTIRES CITY – A recent COVID-19 update posted on Governor Jonvic Remulla's Facebook page showed the province already has 14 positive cases of the dreaded disease prompting most of the province's cities and municipalities to implement total lockdown in their respective localities to tighten security and instill discipline to all residents.

The cities of Bacoor, Imus, Dasmariñas, General Trias and Trece Martires and the municipalities of Naic, Kawit to name a few, are all on total lockdown with manned barriers in all exit and entry points to restrict the passage of non-residents into their areas or limit the entry or exit of non-essential personnel.

To further limit the movement of the residents after office hours of curfew hours, quarantine passes with control numbers were distributed to households in all barangays with the barangay officials personally handing one pass for each household.

The quarantine pass allows only one family member to leave their home for purposes such as purchase of basic

turn to page 2

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New device quickly detects harmful bacteria in blood

Engineers have created a tiny device that can rapidly detect harmful bacteria in blood, allowing health care professionals to pinpoint the cause of potentially deadly infections and fight them with drugs.

The Rutgers-spearheaded study, led by researchers at Rochester Institute of Technology, is published in the journal ACS Applied Materials & Interfaces.

"The rapid identification of drug resistant bacteria allows health care providers to prescribe the right drugs, boosting the chances of survival," said coauthor Ruo-Qian (Roger) Wang, an assistant professor in the Department of Civil and Environmental Engineering in the School of Engineering at Rutgers University-New Brunswick.

Drug-resistant bacteria, or super-bugs, are a major public health concern. Globally, at least 700,000 people die each year as a result of drug-resistant infections, including 230,000 deaths from multidrug-resistant tuberculosis. That number could soar to 10 million deaths a year by 2050 if no action is taken, according to a 2019 report.

Based on a new approach, the tiny new device rapidly isolates, retrieves and concentrates target bacteria from bodily fluids. It efficiently filters particles and bacteria, capturing about 86 percent of them. The nano-device has magnetic beads of different sizes that are designed to trap, concentrate and retrieve Escherichia coli (E. coli) bacteria. The small spaces between the beads are used to isolate bacteria in the device.

The inexpensive, transparent device is easy to fabricate and operate, making it ideal for detecting disease-causing organisms in laboratory and health care settings, according to the study. The research team is working to perfect the device and plans to add multiple devices onto a small chip and explore scaling up testing in the field.

Researchers at the University of Alabama, Tuscaloosa, Carollo Engineers, Inc.; Tsinghua-Berkeley Shenzhen Institute in China; and The State University of New York, Binghamton contributed to the study.

Scientists investigate why females live longer than males

An international team of scientists studying lifespan of wild mammals have found that, just like humans, females tend to live significantly longer than their male counterparts.

The researchers looked at the lifespans of 101 different species, from sheep to elephants, and found that females lived an average of 18% longer than males in more than 60% of the species studies. In humans, females tend to live around 7.8% longer.

The study, led by scientists at University Lyon 1 and published in the journal Proceedings of the National Academy of Sciences, found this was not due to the sexes aging at different rates but that females had an average lower risk of mortality in adulthood than males.

It was unclear from the data as to why females survive longer than males, however the authors suggest that it could be due to complex interactions between the local environmental conditions and sex-specific costs of reproduction.

Professor Tamás Székely, from the Milner Centre for Evolution at the University of Bath, was one of the authors of the study. He said: "We've known for a long time that women on generally live longer than men, but were surprised to find that the difference in lifespan between the sexes was even more pronounced in wild mammals than in humans.

"This could be so that because females are naturally able to live longer, or that female mortality drops compared with males.

"For example, lionesses live at least 50% longer in the wild than male lions. We previously thought this was mostly due to sexual selection – because males fight with each other to overtake a pride and thus have access to females.

(TOTAL... from page 1)

sities like food from public markets, supermarkets, medicines from pharmacies, accomplish financial transactions in banks or other financial service establishments, and seek medical attention in hospitals.

The total lockdown was effected in the hope to slow down if not prevent the spread of COVID-19 in the province.

NOTICE OF INTENT TO VOLUNTARILY DISSOLVE A CORPORATION

Notice is given that a notice of intent to dissolve **GOLDEN HEART PRE-SCHOOL, INC.**, a corporation with its registered office at 128 Bolivar Village, Malainen, Tanza, Cavite will be delivered to the Securities and Exchange Commission for filing in accordance with the Philippine Corporation Code as per Affidavit executed by ELENITA S. CHING before Notary Public Atty. Sherilyn V. Pinpin-Arca and entered in her Notarial Register as Doc. No. 309; Page No. 62; Book No. XXVII; Series of 2020.

(Sgd.) **Affiant**

CC:

NAME: ELENITA S. CHING
ADDRESS: 104 San Jose St., Poblacion I, Tanza, Cavite

NAME: DANILO S. CHING
ADDRESS: 104 San Jose St., Poblacion I, Tanza, Cavite

NAME: LOWIDA ANN S. CHING
ADDRESS: 104 San Jose St., Poblacion I, Tanza, Cavite

NAME: DARWIN S. CHING
ADDRESS: 104 San Jose St., Poblacion I, Tanza, Cavite

NAME: ARVIN S. CHING
ADDRESS: 104 San Jose St., Poblacion I, Tanza, Cavite

NAME: ROZALINA V. PLACIDO
ADDRESS: 22-A, Bonifacio St., Kanlurang, Pasig City

Publication: DIYARYO KABITENYO
Date: March 16, 23 & 30, 2020

AFFIDAVIT OF SELF-ADJUDICATION AS SOLE HEIR

NOTICE is hereby given that the estate of the deceased **RODOLFO GREFALDO JAYCO** who died intestate on August 2, 2016 in Barangay Silogan, Municipality of Tanza, Province of Cavite, consisting of:

a. Pinoy Savings Account Starting account number 0034880120 with BDO Pasugod Tanza, Cavite branch with balance amounting to SIX THOUSAND FIVE HUNDRED TWENTY PESOS AND TEN CENTAVOS (P6,520.10);

b. RETAIL TREASURY BONDS with BDO issued on October 24, 2012 with maturity date on October 24, 2017 in balance valued at 0743-RTB2705-003 amounting to FIVE HUNDRED THOUSAND PESOS (P 500,000.00);

c. SM PRIME HOLDINGS SERIES "D" FIXED RATE BONDS due on 2021 with registry account number 8-SMPHC00971, with ISIN: SMPHCPBD0D21 coupon rate 6.5895 maturity date on February 25, 2021 for the principal amount of ONE MILLION PESOS; and

d. A parcel of land without improvement thereon registered under the name of the sole heir married to her deceased husband or in the Reg. of Silogan, Nhar, of Tanza, Prov. of Cavite, to of Lumo covered by Transfer Certificate of Title No. T-950791 containing an area of Two Hundred Fifty (250) SQ. METERS more or less.

has been self-adjudicated by her sole heir: CELIA Y. JAYCO, and for and in consideration of the said withdrawal, release, she hereby does expressly and absolutely remise, release and forever discharge the Banco de Oro (BDO), its administrators and assigns and/or any of its officers or employees from any and all claims, suits, actions or causes of action which her successors or assigns now have, or in the future may have against the said Bank in connection with the said deposit, and hereby further obligate herself to indemnify the said Bank, its administrators and assigns and/or its officers or employees for any loss or damage which they may sustain arising out of any claim, suit or proceedings initiated by any third person or entity whether private or governmental including, but not limited, to claims by excluded heirs or tax claims by the government.

on March 10, 2020 in the Municipality of Tanza, Province of Cavite, Philippines before Notary Public Atty. Sherilyn V. Pinpin-Arca and entered in her Notarial Register as Doc. No. 310; Page No. 62; Book No. XXXII; Series of 2020.

(Sgd.) **Sole Heir**

Publication: DIYARYO KABITENYO
Date: March 16, 23 & 30, 2020

Republic of the Philippines
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR
Tanza, Cavite

In the matter of Change of First Name in the Certificate of Live Birth (SECPA) of

MARIE ANN B. MATEO

CIVIL CASE NO. 2020

MARIAN M. GOOD
Petitioner

NOTICE OF PUBLICATION

There is a petition filed for the change of first name in Civil Registry Form No. 1A **(SECPA) of MARIE ANN B. MATEO** from **"MARIE ANN"** to **"MARIAN"**

NOTICE IS HEREBY GIVEN that any interested person is called to notify this office and show cause why the same should not be granted.

Let this NOTICE be published at least once a week for two (2) consecutive weeks in a newspaper of general circulation as required under Section 3 of Republic Act No. 9048.

(Sgd.) **MERCY A. CHAVEZ**
Municipal Civil Registrar

DIYARYO KABITENYO – March 23 & 30, 2020

Research breakthrough: Humans are not the first to repurpose CRISPR

In recent years, the development of CRISPR technologies and gene-editing scissors in particular have taken the world by storm. Indeed, scientists have learned how to harness these clever natural systems in the livestock and pharmaceutical industries, among other areas.

New research from the University of Copenhagen shows that we are not the first to find a way to exploit the benefits of the CRISPR technique. Apparently, primitive bacterial parasites have been doing so for millions of years.

The researchers studied the least described and most enigmatic of the six CRISPR-Cas systems found in nature – Type IV CRISPR-Cas. Here, they uncovered characteristics that differ markedly from those in other systems.

"Until recently, CRISPR-Cas was believed to be a defense system used by bacteria to protect themselves against invading parasites such as viruses, much like our very own immune system protects us. However, it appears that CRISPR is a tool that can be used for different purposes by diverse biological entities," according to 28-year-old Rafael Pinilla-Redondo, a PhD at UCPH's Department of Biology who led the research.

One of these biological entities are plasmids – small DNA molecules that often behave like parasites and, like viruses, require a host bacterium to survive.

"Here we found evidence that certain plasmids use type IV CRISPR-Cas systems to fight other plasmids competing over the same bacterial host.

This is remarkable because, in doing so, plasmids have managed to turn the system around. Instead of protecting bacteria from their parasites, CRISPR is exploited to perform another task," says Pinilla-Redondo, adding.

AFFIDAVIT OF SELF-ADJUDICATION AS SOLE HEIR

NOTICE is hereby given that the estate of the late **MACARIA MONTANEZ JOSA** who died intestate on March 12, 2019 at San Pedro St., Barangay Poblacion III, Municipality of Tanza, Province of Cavite consisting of Five (5) Savings Account described as follows:

BANK/BRANCH	SAVINGS ACCOUNT NUMBER	BALANCE
1. METROBANK, Tanza, Cavite	400-3-40025380-8	P 299,371.26
2. BCBC, Tanza, Cavite	8015-30007-1	P 110,879.09
3. PNB, Tanza, Cavite	2441-080-00007	P 594,011.36
4. Bangko Silahitan, Tanza, Cavite	51-00002-7	P 378,991.89
5. Bangko Silahitan, Tanza, Cavite	51-00251-5	P 211,267.62

has been self-adjudicated by her sole heir, EMELIA C. ARAYATA, on March 20, 2019 at Municipality of Tanza, Province of Cavite, Philippines before Notary Public Atty. Sherilyn V. Pinpin-Arca and entered in her Notarial Register as Doc. No. 61; Page No. 13; Book No. XXX; Series of 2019.

(Sgd.) **Sole Heir**

Publication: DIYARYO KABITENYO
Date: March 30, April 6 & 13, 2020

Paving the way for new peptide-based therapeutics with novel method of phage

Chemists at Texas A&M University are taking a p[h]age from bacteria's playbook in order to beat viruses at their own game and develop new drugs to fight cancer and a host of other human diseases in the process.

For decades, scientists have relied on phage display – a technique used to identify novel peptide ligands, or peptides that bind to other proteins or molecules – as a versatile tool in a variety of applications ranging from drug discovery to materials science. A team led by Texas A&M chemist and 2018 Texas A&M Presidential Impact Fellow Dr. Wenshe R. Liu has learned a new trick from an old master: bacteria, successfully harnessing its ability to make short peptides containing noncanonical amino acids (ncAAs) that equip them with special properties, such as enzyme degradation resistance and targeted protein binding capabilities.

Using a clever strategy to "trick" the system so that only viruses containing peptides with ncAAs are capable of reproducing, the Liu research group has found a way to stack the phage display library construction deck, effectively expanding the genetic code of bacteriophages and paving the way for new peptide-based therapeutics. Their findings were published March 13 in the journal Nature Communications.

"Utilizing unnatural amino acids, we greatly expand the utility of phage display for identifying new peptide therapeutics," Liu said.

Phage display is one of several tools that scientist rely on to find new peptides with potential use as drugs to treat diseases, explains 2018 Texas A&M chemistry Ph.D. graduate Dr. Jeffery M. Tharp, a postdoctoral associate at Yale University and lead author on the team's paper, the third thus far representing his thesis work at Texas A&M. In addition, it is one of the first from the Texas A&M Drug Discovery Laboratory, founded by Liu and fellow Texas A&M chemists in 2018.

"Phage display uses viruses, or phages, to 'fish out' specific peptides from a pool of millions of different peptide variants; however, it is very difficult to use this technique to find peptides containing ncAAs," Tharp added. "In our paper, we developed a new method of phage display that allows for easy retrieval of potential peptide drugs containing diverse ncAAs. In addition, we used our new technique to identify novel peptides containing ncAAs that are very strong inhibitors of sirtuin 2 – an enzyme that is involved in regulating human lifespan and is a promising drug target for the treatment of human cancers."

The Liu group collaborated with the Laboratory for Molecular Simulation (LMS), including Texas A&M chemistry Ph.D. candidate and LMS interim manager Andreas Ehnbom and Texas A&M High Performance Research Computing Associate Director Dr. Lisa M. Perez, who performed the molecular dynamics simulations that enabled the team to understand the selectivity involved for specific peptides.

"The beauty of this work, at least in my mind, is that it crosses multiple disciplines of chemistry – synthetic chemistry, chemical biology and computations," Ehnbom said.

Tharp notes that the founders of phage display were awarded the 2018 Nobel Prize in Chemistry in recognition of the technique's versatility, relative ease of use and effectiveness across myriad disciplines. In combination with the resulting new molecules, he predicts the Liu group's new method will be similarly useful for all applications of phage display.

"This technique allows ncAAs with unique structures to be incorporated into the phage peptides, which can help identify more potent peptide drugs," Tharp added. "In addition, we can include reactive ncAAs into the phage peptides, which can potentially be used to make better materials and drug delivery systems."

Tharp says the team will continue to use their new phage display technique to search for other peptides containing ncAAs that inhibit enzymes related to human disease while continuing to develop other methods that expand its utility.

Brain or muscles, what do we lose first?

Someone dies somewhere in the world every 10 seconds owing to physical inactivity — 3.2 million people a year according to the World Health Organisation (WHO). From the age of 50, there is a gradual decline not just in physical activity but also in cognitive abilities since the two are correlated. But which of them influences the other? Does physical activity impact on the brain or is it the other way around? To answer this question, researchers from the University of Geneva (UNIGE), Switzerland, and the NCCR Lives Swiss National Centre of Competence in Research used a database of over 100,000 people aged 50-90 whose physical and cognitive abilities were measured every two years for 12 years. The findings, which are published in the journal Health Psychology, show that – contrary to what was previously thought – cognitive abilities ward off inactivity much more than physical activity prevents the decline in cognitive abilities. All of which means we need to prioritise exercising our brains.

The literature in this area has been looking at the impact of physical activity on cognitive skills for a number of years. "Correlations have been established between these two factors, particularly in terms of memory, but also regarding the growth and survival of new neurons," begins Boris Cheval, a researcher at UNIGE's Swiss Centre for Affective Sciences (CISA). "But we have never yet formally tested which comes first: does physical activity prevent a decline in cognitive skills or vice versa? That's what we wanted to verify."

Earlier studies based on the correlation between physical activity and cognitive skills postulated that the former prevent the decline of the latter. "But what if this research only told half the story? That's what recent studies suggest, since they demonstrate that our brain is involved when it comes to engaging in physical activity," continues the Geneva-based researcher.

The UNIGE researchers tested the two possible options formally using data from the SHARE survey (Survey of Health, Aging and Retirement in Europe), a European-wide socio-economic database covering over 25 countries. "The cognitive abilities and level of physical activity of 105,206 adults aged 50 to 90 were tested every two years over a 12-year period," explains Matthieu Boisgontier, a researcher at the Lives Swiss National Centre of Competence in Research (NCCR Lives). Cognitive abilities were measured using a verbal fluency test (naming as many animals as possible in 60 seconds) and a memory test (memorising 10 words and reciting them afterwards). Physical activity was measured on a scale of 1 ("Never") to 4 ("More than once a week").

The Geneva researchers employed this data in three separate statistical models. In the first, they looked at whether physical activity predicted the change in cognitive skills over time; in the second, whether cognitive skills predicted the change in physical activity; and in the third, they tested the two possibilities bidirectionally. "Thanks to a statistical index, we found that the second model adjusted the most precisely to the data of the participants," says Cheval. The study demonstrates, therefore, that cognitive capacities mainly influence physical activity and not vice versa, as the literature to date has postulated. "Obviously, it's a virtuous cycle, since physical activity also influences our cognitive capacities. But, in light of these new findings, it does so to a lesser extent," points out Boisgontier.

From the age of 50, the decline in physical and cognitive abilities is inevitable. However, these results indicate that, contrary to what was once thought, if we act first on our cognitive skills, we can slow the decline of this vicious circle. "This study backs up our theory that the brain has to make a real effort to get out of a sedentary lifestyle and that by working on cognitive capacities, physical activity will follow," says Cheval by way of conclusion.

How bacteria form communities on the human tongue

Using a recently developed fluorescent imaging technique, researchers in the United States have developed high-resolution maps of microbial communities on the human tongue. The images, presented March 24 in the journal Cell Reports, reveal that microbial biofilms on the surface of the tongue have a complex, highly structured spatial organization.

"From detailed analysis of the structure, we can make inferences about the principles of community growth and organization," says senior author Gary Borisy, of the Forsyth Institute and the Harvard School of Dental Medicine. "Bacteria on the tongue are a lot more than just a random pile. They are never like an organ of our bodies."

The human oral microbiome is a complex ecosystem. The spatial organization of microbial communities in the mouth is affected by a variety of factors, including temperature, moisture, salivary flow, pH, oxygen, and the frequency of disturbances such as abrasion or oral hygiene. In addition, microbes influence their neighbors by acting as sources and sinks of metabolites, nutrients, and inhibitory molecules such as hydrogen peroxide and antimicrobial peptides. By occupying space, microbes can physically exclude one another from desirable habitats, but their surfaces also present binding sites to which other microbes may adhere.

Yet spatial patterning has received relatively little attention in the field of microbial ecology. "We think that learning who is next to who will help us understand how these communities work," says co-author Jessica Mark Welch (@JMarkWelch), a microbial ecologist at the Marine Biological Laboratory in Woods Hole, Massachusetts. "The tongue is particularly important because it harbors a large reservoir of microbes and is a traditional reference point in medicine. 'Stick out your tongue' is one of the first things a doctor says."

In the new study, the researchers used a technique called Combinatorial Labeling and Spectral Imaging — Fluorescence in situ Hybridization (CLASI-FISH), which was recently developed in the Borisy lab. This strategy involves labeling a given type of microorganism with multiple fluorophores, greatly expanding the number of different kinds of microbes that can be simultaneously identified and localized in a single field of view.

"Our study is unique because we are before has been able to look at the biofilm on the tongue in a way that distinguishes all the different bacteria, so that we can see how they arrange themselves," Borisy says. "Most of the previous work on bacterial communities used DNA sequencing-based approaches, but to get the DNA sequence, you have to first grind up the sample and extract the DNA, which destroys all the beautiful spatial structure that was there. Imaging with our CLASI-FISH technique lets us preserve the spatial structure and identify the bacteria at the same time."

First, the researchers used analyzed sequence data to identify major bacterial taxa contained within small samples scraped from the tongues of 21 healthy participants. Guided by sequence analysis, the imaging approach targeted seven genera and selected species to obtain a comprehensive view of microbiome structure. The researchers identified 17 bacterial genera that were abundant on the tongue and present in more than 80% of individuals. The samples consisted of free bacteria, bacteria bound to host epithelial cells, and bacteria organized into consortia — structurally complex, multi-layer biofilms.

The consortia showed patchiness in community structure, consisting of spatially localized domains dominated by a single taxon. Although they varied in shape, they were typically tens to hundreds of microns long and had a core of epithelial cells and a well-defined perimeter. The tongues of all subjects had consortia consisting of three genera: Actinomyces, Rothia, and Streptococcus. Actinomyces frequently appeared near the core, while Rothia was often observed in large patches toward the exterior of the consortium. Streptococcus was observed forming a thin crust on the exterior of the consortia and also formed worm or patches in their interior.

"Collectively, our species-level imaging results confirm and deepen our understanding of habitat specificity of key players and show the value of investigating microbiomes at high imaging and identification resolution," Mark Welch says.

Taken together, the results suggest a model for how the structured microbial communities harbored on our tongues are generated. First, bacterial cells attach to the epithelium of the tongue's surface singly or in small clusters. During population growth, differing taxa pack in into smaller and proximate zones rapidly to accommodate those supporting their physiological needs.

Higher daily step count linked with lower all-cause mortality

In a new study, higher daily step counts were associated with lower mortality risk from all causes. The research team, which included investigators from the National Cancer Institute (NCI) and the National Institute on Aging (NIA), both parts of the National Institutes of Health, as well as from the Centers for Disease Control and Prevention (CDC), also found that the number of steps a person takes each day, but not the intensity of stepping, had a strong association with mortality.

The findings were published March 24, 2020, in the Journal of the American Medical Association.

"While we know physical activity is good for you, we didn't know how many steps per day you need to take to lower your mortality risk or whether stepping at a higher intensity makes a difference," said Pedro Saint-Maurice, Ph.D., of NCI's Division of Cancer Epidemiology and Genetics, first author of the study. "We wanted to investigate this question to provide new insights that could help people better understand the health implications of the step counts they get from fitness trackers and phone apps."

Previous studies have been done on step counts and mortality. However, they were conducted primarily with older adults or among people with debilitating chronic conditions. This study tracked a representative sample of U.S. adults aged 40 and over, approximately 4,800 participants wore accelerometers for up to seven days between 2003 and 2006. The participants were then followed for mortality through 2015 via the National Death Index. The researchers calculated associations between mortality and step number and intensity after adjustment for demographic and behavioral risk factors, body mass index, and health status at the start of the study.

They found that, compared with taking 4,000 steps per day, a number considered to be low for adults, taking 8,000 steps per day was associated with a 51% lower risk for all-cause mortality (or death from all causes). Taking 12,000 steps per day was associated with a 65% lower risk compared with taking 4,000 steps. In contrast, the authors saw no association between step intensity and risk of death after accounting for the total number of steps taken per day.

"At NIA, we've long studied how exercise is important for older adults, and it's good to see further evidence from a large study with a broad sample that the main thing is to get moving for better overall health as we age," said Eric Shiroma, Ph.D., a co-author and NIA Intramural Research Program scientist.

In analyses by subgroups of participants, the authors found that higher step counts were associated with lower all-cause death rates among both men and women, among both younger and older adults, and among white, black, and Mexican-American adults. In secondary outcomes of the study, higher step counts were also associated with lower rates of death from cardiovascular disease and cancer.

Data collection was conducted through the CDC's National Health and Nutrition Examination Survey (NHANES), a program of studies designed to assess a nationally representative sample of the health and nutritional status of adults and children in the United States.

The researchers were surprised they didn't find an association between higher stepping intensity and all-cause mortality after adjusting for the total number of steps per day. Because few studies have investigated an association between mortality and intensity among adults going about their daily lives, the study authors wrote that future studies of walking intensity and mortality are warranted.

Although the study authors controlled for factors that could have affected the results, the study is observational and cannot prove causality. Nevertheless, their findings are consistent with current recommendations that adults should move more and sit less throughout the day. Adults who do any amount of physical activity gain some health benefits. For even greater health benefits, adults are recommended to get at least 150 minutes of moderate-intensity physical activity per week.

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Cannabis helps fight resistant bacteria

Since the discovery of penicillin in 1928 by Sir Alexander Fleming, antibiotics have saved millions of lives from fatal infections world-wide. However, with time bacteria have developed mechanisms to escape the effects of antibiotics – they have become resistant.

With fewer antibiotics available to treat resistant bacterial infections, the possibility of entering a pre-antibiotic era is looming ahead.

Alternative strategies are being explored and helper compounds are attracting attention. Helper compounds are non-antibiotic compounds with the capability of enhancing the efficacy of antibiotics.

One such helper compound has been suspected to be cannabidiol (CBD), a cannabinoid from the cannabis plant. Now a research team from University of Southern Denmark, has published a scientific study proving the effect of CBD.

Senior Kashif Ali-Vehmas is Principal Investigator and corresponding author. First author is PhD student Clara Sondergaard Wennersten. The study is published in the journal Scientific Reports.

When we combined CBD and antibiotics, we saw a more powerful effect than when treating with antibiotics alone. So, in order to kill a certain number of bacteria, we needed less antibiotics, they say.

In the study, CBD was used to enhance the effect of the antibiotic fusimacin against Staphylococcus aureus bacteria, a major human pathogen that frequently causes community- and hospital-acquired disease.

Multidrug-resistant clones of this pathogen have spread globally. In some countries, treatment of bacterial infections with these resistant bacteria are difficult and the problem is projected to be an ever-larger problem in the future.

According to the researchers, the combination of CBD and antibiotics may be a novel treatment of infections with antibiotic resistant bacteria.

Singapore modelling study estimates impact of physical distancing on reducing spread of COVID-19

A new modelling study conducted in a simulated Singapore setting has estimated that a combined approach of physical distancing interventions, comprising quarantine (for affected individuals and their families), school closure, and workplace distancing, is most effective at reducing the number of SARS-CoV-2 cases compared with other intervention scenarios including in the study.

When less effective than the combined approach, quarantine plus workplace measures presented the next best option for reducing SARS-CoV-2 cases, followed by quarantine plus school closure, and then quarantine only. All intervention scenarios were more effective at reducing cases than no intervention.

The study, published in The Lancet Infectious Diseases journal, is the first of its kind to investigate using these options for early intervention in Singapore using simulation. Despite heightened surveillance and isolation of individuals suspected to have COVID-19 and confirmed cases, the risk is ongoing, with the number of cases continuing to increase in Singapore.