



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY
Wednesday 201901016

Early menopause

Early menopause may increase heart disease risk in women: Study (The Tribune: 201901016)

<https://www.tribuneindia.com/news/health/early-menopause-may-increase-heart-disease-risk-in-women-study/847983.html>

Women who reach menopause before the age of 50 have an increased risk of cardiovascular diseases like heart attack, angina or stroke, according to researchers, including one of Indian origin.

“Women under 40 who experience premature menopause were nearly twice as likely to have a non-fatal cardiovascular event before the age of 60,” said Gita Mishra, a professor at The University of Queensland (UQ) in Australia.

“This is compared to women who reach menopause between the ages of 50 or 51, during what is considered the standard developmental period,” Mishra said.

The study, published in The Lancet Public Health journal, found that women who were aged between 40 and 44 in menopause were 40 per cent more likely to suffer from a cardiovascular condition.

Past studies have found an association between early menopause and fatal cardiovascular events.

“The relationship with non-fatal cardiovascular events was unclear until now,” Mishra said.

“Smoking, being overweight or obese, and having lower education levels can also strengthen the link between early menopause and a woman’s risk of cardiovascular disease,” she said.

Insights were gathered from over 300,000 women in 15 studies around the world using the collaborative databank, InterLACE.

UQ School of Public Health PhD scholar Dongshan Zhu who led the study said that the findings would have important clinical and public health implications.

“Identifying women with early menopause offers a window of opportunity for their doctors to work with them to monitor and actively manage cardiovascular disease risk factors,” Zhu said.

“Early clinical diagnosis will help to improve overall cardiovascular health in their postmenopausal years,” said Zhu. —PTI

Nutrition

High on ease, low on nutrition: instant-noodle diet harms Asian kids (The Tribune: 201901016)

<https://www.tribuneindia.com/news/health/high-on-ease-low-on-nutrition-instant-noodle-diet-harms-asian-kids/847566.html>

A diet heavy on cheap, modern food like instant noodles that fills bellies but lacks key nutrients has left millions of children unhealthily thin or overweight in southeast Asia, experts say.

The Philippines, Indonesia and Malaysia have booming economies and rising standards of living, yet many working parents do not have the time, money or awareness to steer clear of food hurting their kids.

In those three nations, an average of 40 percent of children aged five and below are malnourished, higher than the global average of one-in-three, according to a report out Tuesday from UNICEF, the UN children's agency.

"Parents believe that filling their children's stomach is the most important thing. They don't really think about an adequate intake of protein, calcium or fibre," Hasbullah Thabrany, a public health expert in Indonesia, told AFP.

UNICEF said the harm done to children is both a symptom of past deprivation and a predictor of future poverty, while iron deficiency impairs a child's ability to learn and raises a woman's risk of death during or shortly after childbirth.

To give some sense of scale to the problem, Indonesia had 24.4 million children under five last year, while the Philippines had 11 million and Malaysia 2.6 million, UNICEF data show.

Mueni Mutunga, UNICEF Asia nutrition specialist, traced the trend back to families ditching traditional diets for affordable, accessible and easy-to-prepare "modern" meals.

"Noodles are easy. Noodles are cheap. Noodles are quick and an easy substitute for what should have been a balanced diet," she told AFP.

The noodles, which cost as little as 23 US cents a packet in Manila, are low on essential nutrients and micronutrients like iron and are also protein-deficient while having high fat and salt content, Mutunga added.

Indonesia was the world's second-biggest consumer of instant noodles, behind China, with 12.5 billion servings in 2018, according to the World Instant Noodles Association.

The figure is more than the total consumed by India and Japan put together.

Nutrient-rich fruits, vegetables, eggs, dairy, fish and meat are disappearing from diets as the rural population moves to the cities in search of jobs, the UNICEF report said.

Though the Philippines, Indonesia and Malaysia are all considered middle-income countries by World Bank measures, tens of millions of their people struggle to make enough money to live.

"Poverty is the key issue," said T. Jayabalan, a public health expert in Malaysia, adding that households where both parents work need quickly made meals.

Low-income households in Malaysia depend largely on ready-made noodles, sweet potatoes and soya-based products as their major meals, he said.

Sugar-rich biscuits, beverages and fast food also pose problems in these countries, according to experts.

Rolling back the influence instant noodles have on the daily lives, and health, of people in southeast Asia will likely require government intervention, they said.

"Promotion and advertising is extremely aggressive," said Thabrany, the Indonesian public health expert.

"There is massive distribution. They (instant noodles) are available everywhere, even in the most remote places." - AFP

Cataract surgery

Cataract surgery can make you 48% safer on road (The Tribune: 201901016)

<https://www.tribuneindia.com/news/health/cataract-surgery-can-make-you-48-safer-on-road/847550.html>

The ability of cataract surgery to restore sight is well known and a new study suggests that it can make people 48 per cent safer on the road.

Cataracts are normal consequences of aging. They happen gradually over years, as the clear lens inside the eye becomes cloudy.

Cataract surgery replaces the cloudy lens with an artificial lens.

"The results highlight the importance of timely cataract surgery in maintaining safety and continued mobility and independence in older adult drivers," said study author Jonathon Ng, from the University of Western Australia.

For the findings, presented at the 123rd Annual Meeting of the American Academy of Ophthalmology, the research team tested the driving performance of 44 patients before they had cataract surgery.

The driving simulator assessed a variety of variables: adjusted speed limits, traffic densities, uncontrolled intersections and pedestrian crossings.

Patients were put through the driving simulator after their first surgery and again after the second eye surgery.

After the first, near misses and crashes decreased by 35 per cent; after the second surgery, the number fell to 48 per cent.

"While visual acuity—how well one sees the eye chart—is an important method to assess a person's fitness to drive, it's an incomplete assessment," Ng said.

"Quality of vision is also an important indicator. Improved contrast sensitivity and better night vision improves drivers' safety on the road," the study author added.

When considering cataract surgery, the researchers revealed some points to be considered: Can you see to safely do your job and to drive?, Do you have problems reading or watching TV? Is it difficult to cook, shop? Do bright lights make it harder to see? — IANS

Pregnancy

Pregnant women experiencing physical and psychological stress are less likely to have a boy, says a new study. (The Tribune: 201901016)

<https://www.tribuneindia.com/news/health/stress-during-pregnancy-may-affect-baby-s-sex-study/847535.html>

"Stress can also affect the mother's immune system, leading to changes that affect neurological and behavioural development in the foetus," said study leader Catherine Monk, Professor at Columbia University Vagelos College in the US.

"What's clear from our study is that maternal mental health matters, not only for the mother but also for her future child," Monk said.

For the findings, published in the journal PNAS, the research team examined 27 indicators of psychosocial, physical and lifestyle stress collected from questionnaires, diaries, and daily physical assessments of 187 otherwise healthy pregnant women, between 18 to 45 years.

About 17 per cent of the women were psychologically stressed, with clinically meaningful high levels of depression, anxiety, and perceived stress.

Another 16 per cent were physically stressed, with relatively higher daily blood pressure and greater caloric intake compared with other healthy pregnant women.

The majority (nearly 125) were healthy.

The study suggested that pregnant women experiencing physical and psychological stress are less likely to have a boy.

The sex ratio in the physically and psychologically stressed groups favoured girls, with male-to-female ratios of 4:9 and 2:3, respectively.

According to the researchers, physically stressed mothers, with higher blood pressure and caloric intake, were more likely to give birth prematurely than unstressed mothers.

Psychologically stressed mothers had more birth complications than physically stressed mothers, the study said.

An estimated 30 per cent of pregnant women report psychosocial stress from job strain or related to depression and anxiety.

Such stress has been associated with increased risk of premature birth, which is linked to higher rates of infant mortality and of physical and mental disorders, such as attention-deficit hyperactivity disorder and anxiety, among offspring.

When social support was statistically equalised across the groups, the stress effects on pre-term birth disappeared, the study added. — IANS

Mental health

Pressurising newly-weds to conceive affects mental health (The Tribune: 201901016)

<https://www.tribuneindia.com/news/health/pressurising-newly-weds-to-conceive-affects-mental-health/847549.html>

Newly-married women are still subject to fulfilling unwarranted expectations such as having children, say experts at Apollo Cradle, adding such familial and societal pressure on women can affect their mental health.

In past one year, Apollo Cradle—an initiative of the Apollo Hospitals Group, has seen significant increase in such cases where women have shown signs of lack of mental well-being, most of which are caused by the worry of bearing a child and to balance work and life after having a child.

"Having a child is a matter of joy and begins a completely new journey of exploring one's unknown side. However, women, including newly-weds are reporting mental health issues such as stress depression, anxiety, etc. owing to the pressure from family and society to have children," said Sadhna Sharma, senior consultant, Gynaecology & Obstetrics, Apollo Cradle Hospital & Miracles Mediclinic in Gurugram.

"To make a woman responsible to have a child is an unacceptable situation since it is a personal decision and should be taken by the partners, and not by the society," she added.

According to doctors, many women chose to remain quiet about their problems due to the social stigma attached to psychological counselling.

Mental health causes nearly 14 per cent of diseases globally and women are more likely than men to be affected by mental disorders, the most common being anxiety and depressive disorders, according to the doctors.

"Do not feel pressured or judged due to not having kids, and handle the situation as you please—you may want to be vocal or may give a politically-correct answer to the queries," Sharma said.

Experts suggest that the best way to cope with the pressure is to know yourself and to have a solid understanding of why you have made a choice.

Mental well-being ensures effective functioning for an individual and a community.

Women are more likely than men to be affected by mental disorders, the most common being anxiety and depressive disorders. — IANS

Malnourished (The Asian Age: 201901016)

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=13929757>

Are you malnourished? Quite possibly



Kundhavi Kadiresan

focus

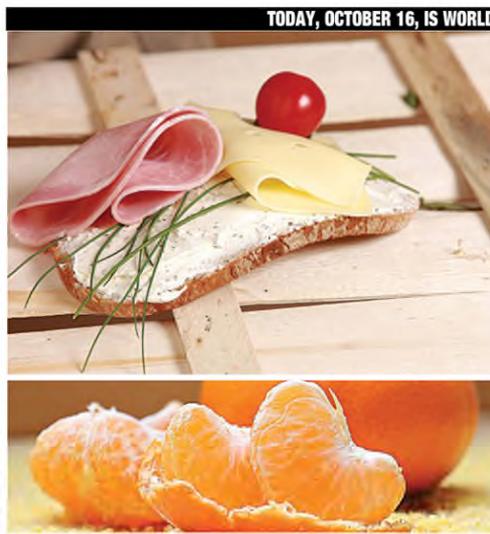
■ With more than 820 million hungry people in the world, most of them living in our Asia-Pacific region, undernourishment is definitely a huge problem and one that has stubbornly vexed attempts to crack. But there are other malnutrition phantoms in our midst and these are probably lurking closer to your own home.

The word 'malnutrition' tends to invoke images of starving children in refugee camps, fleeing conflict or drought in lands far-away. While that image does reflect a reality of hunger, it does not solely define malnutrition nor those who suffer from it.

Certainly with more than 820 million hungry people in the world, most of them living in our Asia-Pacific region, undernourishment is definitely a huge problem and one that has stubbornly vexed attempts to crack.

But there are other malnutrition phantoms in our midst and these are probably lurking closer to your own home than you might realise. Waistlines of men and women have been expanding in recent decades and there are more than two billion overweight adults in the world — while 670 million of them are obese. More than 120 million children and teens are also defined as obese.

What we eat, of course, defines how well-nourished (or malnourished) we are. In other words, it's not simply quantity (as in how much we eat) that's causing the malnourishment, it's more to do with what we're eating — or not eating. Simply put, the world is facing a triple burden of malnutrition — from undernourishment, micronutrient deficiencies (lack of vitamins and minerals) and from becoming overweight or obese.



Smart meals help us tackle calorie creep and unwanted weight gain

Pacific region, we are bombarded by advertisements encouraging us to eat more junk food high in sugars, salt and fats. Meantime, many people consume fewer fruits, vegetables and other foods high in fibre. It seems we've forgotten that an apple a day keeps the doctor away!

Technologies such as computers and smart phones, which bring us much of our entertainment these days, encourage more sedentary lifestyles which mean the additional calories we are absorbing are not being burned due to a lack of exercise. That's simply a 'fat fact.'

This phenomenon of poor diets is not restricted to urban areas or richer countries or wealthier people within poorer countries. Some people, due to where they live, don't even have the option to buy healthier foods. Fruits and vegetables, in some cases, are either not available or might be deemed too expensive — so they eat whatever is available — often fried street foods.

Paying the price of a poor diet and amending our ways. As with most excesses, there is a human and monetary price to pay for all of this. Diets have become so unhealthy, that when combined with sedentary lifestyles, they rank as the world's primary risk factor for disability and death from non-communicable diseases.

As individuals, we can start by having a look in the mirror, and realizing that there are personal choices that we all can, and should, make about the foods we eat. But governments, farmers and the private sector have equally important roles. Governments can improve

Diets have become so unhealthy, that when combined with sedentary lifestyles, they rank as the world's primary risk factor for disability and death from non-communicable diseases.

ed at USD 3.5 trillion per year. So, it's clear, we have both a personal and collective best interest in changing our ways. But where to start and who leads?

As individuals, we can start by having a look in the mirror, and realizing that there are personal choices that we all can, and should, make about the foods we eat. But governments, farmers and the private sector have equally important roles. Governments can improve

food systems by implementing policies that place a higher priority on nutritious foods. As one example, in the Republic of Korea, the city of Seoul is tackling rising obesity through a number of initiatives including certifying "smart meals" with lower levels of fat and salt at restaurants, child care centres and even pre-packed meals in convenience stores so that youth can identify a healthier option. And young people are key to turning this around — so parents, teachers and other mentors are vital to instilling healthy diets at a young age.

The private sector — food manufacturers, retailers, etc. — can improve the nutritional quality of their products and promote them as such to the public. Farmers can plant a wider variety of nutritious foods like fruits, vegetables, legumes

and nuts. The diversification should even improve the farmer's livelihood and help make his or her family more food secure in the process.

So we all have a role to play, particularly as the world has pledged to end malnutrition in all forms by 2030 as one of the key Sustainable Development Goals.

On October 16 this year countries worldwide will organise activities around World Food Day and this year's theme calls upon us all to take action to achieve healthier diets. It claims "our actions are our future". The future is already here. So our actions should start now.

The writer is an assistant director-general and regional representative of the Food and Agriculture Organization, based in Bangkok

World child health Report (The Asian Age: 201901016)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=13929777>



Unicef report on kids

Unicef unveiled the Fund's first State of the World's Children report since 1999.

USA third of the world's nearly 700 million children under five years old are undernourished or overweight and face lifelong health problems as a consequence

Half of youngsters across the globe under five are not getting essential vitamins and minerals, a long-standing problem	This triple burden – undernutrition, a lack of crucial micronutrients, obesity – is increasingly found in the same country, sometimes in the same neighbourhood, and often in the same household
	More than 800 million people in the world are constantly hungry and another two billion are eating too much of the wrong foods, driving epidemics of obesity, heart disease and diabetes

Dementia

Dementia: Brain mapping method may predict progression (Medical News Today: 201901016)

<https://www.medicalnewstoday.com/articles/326689.php>

Does dementia spread gradually and evenly in all directions across the brain, or can it "jump" from one brain area to another? New research helps to settle the question by examining the progression of frontotemporal dementia.

hand pointing at mri scans

Researchers have used MRI scans to improve their prediction of brain atrophy progression in a type of dementia.

Frontotemporal dementia (FTD) is a condition in which the frontal and temporal anterior lobes of the brain shrink, or atrophy. This results in two broad categories of symptoms: behavioral changes and language problems. Unlike in other forms of dementia, FTD does not affect spatial awareness and memory.

There are currently no treatments for slowing the progression of FTD. The medical community has insufficient knowledge of how the disease spreads and how differently it progresses between individuals.

To help understand the condition, Dr. William Seeley — a professor of neurology and pathology at the Memory and Aging Center and Weill Institute at the University of California San Francisco — together with his team, set out to examine the patterns of brain atrophy progression in FTD.

Dr. Seeley and his colleagues published their findings in the journal *Neuron*.

Finding the 'patient-tailored epicenter'

The new study builds on previous work by Dr. Seeley, which showed that in various forms of dementia, brain atrophy patterns largely overlap with well known "highways" in the brain.

These highways are brain networks, or groups of brain regions that communicate closely via their synaptic connections, functioning together. These brain regions cooperate, sometimes from afar, with the functional brain networks enabling this long distance communication by serving as "roads."

Dr. Seeley's previous work on how degeneration spreads showed that neurodegeneration, or atrophy, does not spread evenly like a tumor, but can "jump" from one brain area to another.

Walking patterns may help differentiate types of dementia

Walking patterns may help differentiate types of dementia

New research suggests that people with Lewy Body dementia walk differently from people with Alzheimer's disease.

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The new study adds to this evidence. Here, the scientists examined how well neural network maps based on brain scans from cognitively healthy participants can predict the advancement of brain atrophy in people with FTD over 1 year.

To find out, the team asked a group of 42 people living with one of two subtypes of FTD to have an MRI scan at the beginning of the study and another one about 12 months later. This way, the researchers could see how the disease progressed.

Then, using the functional MRI brain scans of 75 healthy participants, the researchers created standardized maps of 175 different brain areas and the corresponding regions that they communicated with.

After they identified the brain networks in this way, the team picked the one network that most closely matched the brain atrophy pattern observed in a person with FTD.

Dr. Seeley and his team identified and deemed the center of this specific brain network as the "patient-tailored epicenter" of brain degeneration.

Using the same standardized brain network maps, the researchers predicted where the atrophy would spread to over 1 year, and compared their predictions with the MRI scans.

They also compared the accuracy of their predictions with predictions that did not account for functional network connectivity.

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Knowing the 'patient zero' of brain atrophy

The researchers identified two functional connectivity measures in particular that improved the accuracy of their predictions.

One of them, called "shortest path to the epicenter," measured the number of synaptic connections between the initial epicenter and the brain area to which the damage had spread.

The other measure, the "nodal hazard," measured the number of already atrophied brain areas connected to one main, given brain area.

"It's like with an infectious disease, where your chances of becoming infected can be predicted by how many degrees of separation you have from 'Patient Zero' but also by how many people in your immediate social network are already sick," says Jesse A. Brown, the study's first author.

He adds that their findings will hopefully help scientists determine and target the next disease site, "Just like epidemiologists rely on models of how infectious diseases spread to develop interventions targeted to key hubs or choke points."

"Neurologists need to understand the underlying biological mechanisms of neurodegeneration to develop ways of slowing or halting the spread of the disease," he adds.

"We are excited about this result because it represents an important first step toward a more precision medicine type of approach to predicting progression and measuring treatment effects in neurodegenerative disease."

Dr. William Seeley

However, the scientists also emphasize the fact that their method is not yet ready for clinical use. They do hope that in the future, their results will help evaluate potential therapies that have entered clinical trials.

Drinks

Drinks, not food, with added sugar promote weight gain (Medical News Today: 201901016)

<https://www.medicalnewstoday.com/articles/326686.php>

Published Tuesday 15 October 2019 By Catharine Paddock, Ph.D. Fact checked by Isabel Godfrey

The effect of added sucrose in the diet on calorie intake and body weight appears to depend on whether it is in liquid or solid form, according to a new study in mice. If the results translate to humans, they suggest that the contribution of added dietary sugar to obesity comes largely from sugar-sweetened drinks.

woman sipping soda

If scientists replicate this finding in humans, it will validate rising concerns about the consumption of sugary drinks.

A team of scientists in the United Kingdom and China made these suggestions after giving mice added sugar in either their drink or their food for 8 weeks and then comparing them.

In both groups of mice, the added sugar represented 73% of the available dietary calories.

A recent *Molecular Metabolism* paper carries a full report of the study.

"The consumption of sugar-sweetened beverages," says John R. Speakman, a professor in the school of biological and environmental sciences at the University of Aberdeen in the U.K., "has been widely implicated as a contributing factor in obesity, and we investigated whether the mode of ingestion (solid or liquid) had different impacts on body weight regulation in mice."

Prof. Speakman, who led the research at both the University of Aberdeen and the Chinese Academy of Sciences in Beijing, China, is the corresponding and senior author of the new study.

Liquid sucrose led to weight gain

The researchers monitored the mice's body weight, body fat, calorie intake, and energy expenditure.

They also measured glucose and insulin response as a way to assess how close the animals might come to developing diabetes.

Is this how fructose worsens the effect of high fat diets?

Is this how fructose worsens the effect of high fat diets?

Research in mice reveals that consuming fructose-sweetened drinks can disrupt the liver's ability to burn fat.

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The results showed that the mice that had liquid sucrose in their drinking water consumed more calories, put on more weight, and increased their body fat.

In contrast, the mice that had the same level of added sucrose in their food pellets but drank plain water "were leaner and metabolically healthier than their counterparts exposed to liquid sucrose," write the authors.

The mice that had increased body fat as a result of drinking liquid sucrose also developed lower tolerance to glucose and sensitivity to insulin, both of which are markers of raised diabetes risk.

However, the authors link these adverse metabolic markers to an increase in body fat and not directly to higher sucrose intake.

Liquid, but not solid, sucrose to blame

In their study discussion, the authors suggest that the findings may explain why their own previous investigations on increased dietary sucrose in mice did not show a significant effect on energy intake and body weight. In those studies, they fed the mice a diet containing only 30% sucrose and delivered it only in solid form.

"The current results demonstrate," they note, "that when exposed to liquid sucrose, mice had greater energy intake than when offered the same macronutrient composition but in solid form."

The team also suggests that the findings point to liquid, as opposed to solid, sucrose being a factor on its own.

Many human studies have revealed a link between sugar-sweetened drinks and total calorie intake. This link would suggest that when people consume more carbohydrates in liquid form, they do not compensate by reducing the amount that they consume in solid form.

While the new findings did show that there was some reduction in solid food intake as a result of sucrose-enriched water consumption, the "reduction was insufficient to balance the elevated calorie intake in the liquid sucrose."

"These data, therefore, support the suggested role of sugar-sweetened beverages in the development of diet-induced obesity and insulin resistance," conclude the authors.

A better understanding of excess food intake

Gunter Kuhnle, a professor of nutrition and food science at the University of Reading in the U.K., was not involved in the recent research, although his group carries out similar investigations.

He describes the new study as "very interesting" because of the importance of understanding how sugar-sweetened drinks contribute to obesity.

He also draws attention to studies in humans that have shown that sugar-sweetened drinks increase energy consumption. He observes that the new study "investigates this further and confirms these findings."

Prof. Kuhnle does, however, point out the study's two main limitations. The first is that research in mice does not always translate to humans.

The second limitation is that the amount of sucrose in the mice's water was much higher than that present in many of the sugar-sweetened drinks that people consume.

The mice's water was 50% sugar, which is five times the amount in the average cola drink and double the amount present in many milkshakes, he observes.

"However, despite these limitations, this study clearly highlights the need for a better understanding [of] the underlying reasons for excess food intake and how they can be modified," he adds.

As a food category, sugar-sweetened drinks — including soda, energy, and sports drinks — are by far the most significant contributor of added sugar in the average diet in the United States. So concluded an analysis of 2005–2006 national survey data by the National Cancer Institute (NCI), one of the National Institutes of Health (NIH).

That NCI report revealed that the average person in the U.S. consumed 21 teaspoons of added sugar per day and that sugar-sweetened drinks accounted for more than one-third (35.7%) of the intake. The next largest contributor was grain based desserts, which accounted for 12.9% of daily added sugar intake.

"There has been a lot of concern recently over the intake of sugary drinks, and if humans respond in the same way as mice do, then these concerns may be entirely justified."

Coffee

Could coffee byproducts fight inflammation? (Medical News Today: 201901016)

<https://www.medicalnewstoday.com/articles/326669.php>

Published Tuesday 15 October 2019 By Tim Newman Fact checked by Jasmin Collier

A recent study concludes that the husks and silverskin that coffee manufacturers remove during production might harbor useful compounds. Although the study is preliminary, its findings could eventually benefit both human health and the environment.

Coffee grower

The study looks to repurpose the waste that coffee production creates.

Coffee is one of the world's most popular drinks. To produce coffee, only the bean itself needs roasting.

To reach the bean, growers remove the husk, which is a tough outer shell, and the silverskin, which is a thin skin that covers the seed.

They tend to leave the husks, in particular, in the field.

These abandoned coffee byproducts contain chemicals such as caffeine, tannins, and chlorogenic acid, which can be hazardous to the environment.

Manufacturers produce around 0.68 tons of green coffee waste to generate 1 ton of fresh coffee, so it makes sense to find ways to repurpose these byproducts.

Now, researchers at the University of Illinois at Urbana–Champaign are investigating whether or not some of this waste could be useful for its bioactive properties.

Converting waste into medicine

Using extracts of silverskin and husk, the scientists investigated whether these byproducts might reduce some of the biochemical hallmarks of obesity. They also tested individual phenolic compounds extracted from silverskins.

They have now published their results in the journal *Food and Chemical Toxicology*.

Fighting obesity with a single cup of coffee

Fighting obesity with a single cup of coffee

A recent study concluded that coffee might stimulate the generation of "good" fat.

Study co-author Prof. Elvira Gonzalez de Mejia explains why they were interested in these particular coffee products.

"This material from coffee beans is interesting, mainly because of its composition. It's been shown to be nontoxic. And these phenolics have a very high antioxidant capacity."

Obesity is an increasingly common but complex issue: There is much more to obesity than excess fat tissue. In fact, it goes hand in hand with low grade chronic inflammation, which can lead to insulin resistance. Insulin resistance occurs when the cells of the body become less responsive to insulin.

Insulin resistance is also associated with an increase of macrophages in fat tissue. Macrophages are immune cells that detect and destroy pathogens.

The increase of macrophage numbers in adipose tissue triggers the release of chemicals that work to increase inflammation, creating a vicious cycle.

Obesity-related inflammation also appears to impact mitochondria, the fabled "powerhouses of the cell." The resulting mitochondrial dysfunction is linked to lipid accumulation within the fat cells, which is also tied to insulin resistance.

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Studying obesity-related inflammation

The authors of the new study believe that if it is possible to curtail inflammation, it might derail the interlinking pathways of obesity, insulin resistance, and inflammation, thereby reducing the amount of overall damage.

Using cultured cells, they set out to investigate the effects of the coffee extracts on obesity-related inflammation, mitochondrial dysfunction, insulin resistance, and adipogenesis. This is the formation of fat cells from precursor cells.

The scientists cultured the fat cells and macrophages together to simulate "real life" interactions between the cells. Lead study author Miguel Rebollo-Hernanz explains what they found.

"We evaluated two extracts and five pure phenolics, and we observed that these phenolics, mainly protocatechuic acid and gallic acid, were able to block this fat accumulation in

adipocytes mainly by stimulating lipolysis, but also by generating 'brown-like' or 'beige' adipocytes."

Brown-like adipocytes contain large numbers of mitochondria and burn fat. Rebollo-Hernanz adds, "We saw that these phenolics were able to reduce and decrease the secretion of inflammatory factors, but also decrease oxidative stress."

"Now we know that in the presence of these compounds, we can reduce inflammation, reduce adipogenesis, and decrease the 'loop' that helps the two types of cells grow and develop bad compounds that will negatively affect the whole system."

Prof. Elvira Gonzalez de Mejia

In this study, the researchers used cell cultures. Although this is where much of medical research begins, it is a long path between here and creating a usable intervention.

Another issue, as the authors explain, is that the body is likely to break down phenolic compounds before they can reach adipose tissue.

Using coffee byproducts to benefit health might also benefit the environment, so the idea is worth pursuing.

Once the coffee producers see the value, explains Prof. de Mejia, "they will treat these materials as an ingredient instead of a waste."

"It will require good collaboration between academic institutions, industry, and the public sector to solve this problem, but the market is there for these products."