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Histotechnology Professionals Day

Histotechnology Professionals Day is observed to recognise the vital contributions of histotechnologists and histotechnicians in the field of healthcare and diagnostic medicine. These skilled laboratory professionals prepare tissue samples for microscopic examination, playing a crucial role in detecting diseases such as cancer and other medical conditions. By processing, staining and preserving biopsy specimens with precision, they enable pathologists to make accurate diagnoses that guide treatment decisions. Often working behind the scenes, histotechnology experts combine science, technology and meticulous attention to detail to support patient care. The day honours their dedication, expertise and indispensable role in modern medical diagnostics.

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TUESDAY
10 March 2026
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#ARCHAEOLOGY

Mauryan Measurement System and Its Harappan Legacy

Tools at the sites suggest that the Harappans used fixed ratios and uniform units essential for urban planning, trade, and construction

The Mauryan Empire (c. 322-185 BCE) is known for its efficient administration, monumental architecture, and centralized governance. One of the key foundations of this efficiency was a standardized system of weights and measurements, which the Mauryans did not invent independently but inherited and developed from the earlier Harappan (Indus Valley) Civilization. Archaeological discoveries and ancient texts together reveal a remarkable continuity in measurement practices across centuries.

Harappan Foundations of Measurement

The Harappan Civilization (c. 2600-1900 BCE) had already achieved a high degree of precision in weights and linear measurement. Excavations at important Harappan sites provide direct evidence:

- At **Kalibangan**, a terracotta scale with evenly spaced markings was discovered, indicating the use of standardized linear units.
- At **Lothal**, archaeologists found an ivory scale with extremely fine and regular divisions, demonstrating advanced craftsmanship and accuracy.

These measuring tools suggest that the Harappans used fixed ratios and uniform units essential for urban planning, trade, and construction. The consistency seen across distant Harappan sites indicates a centrally accepted measurement system.

Arthashastra and Standardized Units

The Arthashastra, attributed to Kautilya (Chanakya) and dated to the Mauryan period, provides a detailed textual description of measurement practices. It confirms the continued use of traditional units inherited from earlier times.

According to the Arthashastra:

- The Angulam (finger breadth) was the basic unit of length.
- A group of angulams formed the Danda, a standard measuring rod used for land measurement, architecture, and administration.

These units correspond closely with the divisions found on Harappan scales, indicating that Mauryan measurements were not new creations but systematic adaptations of older traditions.

Evidence from Barabar and Nagarjuni Caves

The Barabar and Nagarjuni caves, carved during the reign of Emperor Ashoka and his successors, provide strong architectural evidence of precise measurement. These rock-cut caves display:

- Perfect geometric symmetry
- Uniform dimensions
- Highly polished interiors

Such precision would have required reliable measuring tools and standardized units like the danda. The consistency in proportions across different caves suggests state-controlled measurement practices rooted in long-established systems.

The Mauryan measurement system represents a direct continuation of Harappan scientific traditions. Archaeological evidence from Kalibangan and Lothal, textual descriptions in the Arthashastra, and architectural precision seen in the Barabar and Nagarjuni caves together demonstrate that the Mauryans inherited, standardized, and expanded an ancient system of measurement. This continuity highlights the enduring legacy of the Harappan Civilization in shaping the administrative and technological achievements of the Mauryan Empire.

No, Wolves Don't Howl At The Moon

Like many apex predators, wolves play important ecological roles in their habitats. A widely cited example occurred about a century ago in Yellowstone National Park, where native gray wolves were eliminated by 1920. Initially viewed as a benefit, the loss of wolves lost its luster as the park's elk population exploded. Without wolves to reduce their numbers or chase them away from prime feeding areas, Yellowstone's growing elk herds began to feast unsustainably. They ate young aspen trees too quickly for groves to regenerate, devoured food sources needed by other species, and stripped important vegetation along the banks of streams and wetlands, increasing erosion.

Verna Mohon

#WILD

Wolves and humans have a complicated relationship. We often vilify the 'Big Bad Wolf' in fiction and real life, but we're also consistently fascinated by these smart, social mammals, and we haven't always clashed. Our ancestors even allied with wild wolves, sometime in the late Pleistocene Epoch, eventually giving us the unparalleled friends that we now know as dogs.

Despite all this history, many don't understand wolves as well as they think. Domesticated dogs can be quite different from their wild relatives, who haven't spent millennia learning to love us. Due to humans' decimation of wild wolves in recent centuries, most people alive today have little or no personal experience with wolves aside from dogs.

Widespread myths also distort our view of wolves, from misconceptions about 'alpha wolves' to more harmful misunderstandings about the threat wolves pose to people. Wolves can be dangerous, of course, but attacks on humans are rare as these animals generally don't see us as prey.

In hopes of shedding more light on what wolves are like outside fables and fairy tales, here are a few unexpected facts you may not know about these unique allies and adversaries of humanity.

Wolves Are Surprisingly Diverse

The word 'wolf' usually refers to the gray wolf (Canis lupus), the most widespread and familiar wolf species. Gray wolves are widely thought to have evolved from the smaller Mosbach wolf, a now-extinct canid in Eurasia during the Middle to Late Pleistocene. Thanks to adventurous, adaptable ancestors, gray wolves have thrived for hundreds of thousands of years across huge swaths of Eurasia and North America where they've diverged into a wide variety of subspecies.

There is still debate over how wide that variety is, with scientists dividing them into anywhere from eight to 38 subspecies. In North America, these include the ghostly Arctic wolf, the large northwestern wolf, the small Mexican wolf, and the eastern or timber wolf, which some authorities consider a separate species. There is also the enigmatic red wolf (C. rufus), a rare canid classified either as a distinct species or as a subspecies of gray wolf, with possible coyote ancestry in either case.

The Eurasian wolf is the largest of several Old World subspecies and the most abundant with the largest range. Others include the northerly tundra wolf, the high-elevation Himalayan wolf, the desert-dwelling Arabian wolf, and the plains-prowling Indian wolf. Aside from gray wolves, the genus Canis also includes closely related species such as coyotes and golden jackals, as well as two other species commonly known as wolves: the Ethiopian wolf (C. simensis) and the African golden wolf (C. lupaster).

There Used to Be a Lot More Wolves

Even with this diversity, and the relative abundance of gray wolves globally, Earth now has far fewer wolves, and fewer kinds, than it once did.

The fossil record has revealed an array of interesting wolf and wolf-like species, for example, including the famous dire wolf (Aenocyon dirus) as well as the hypercarnivorous Xenocyons, or 'strange dogs,' which may be ancestors of modern African wild dogs and dholes. On top of natural extinctions in prehistoric times, however, humans have waged war on gray wolves for centuries. The gray wolf was once the most widely distributed mammal on Earth, according to the International Union for Conservation of Nature (IUCN), but persecution by people has helped reduce its range by about one-third. Several unique subspecies were lost along the way, including the Florida black wolf, the Great Plains wolf, the Mississippi Valley wolf, and the Texas wolf, as well as Old World species such as the Japanese wolf, the Hokkaido wolf, and the Sicilian wolf.

Dire Wolves May Not Have Been Wolves

The now-extinct dire wolf was common across North America until about 13,000 years ago when much of the continent's megafauna vanished amid natural climate changes. Dire wolves were comparable in size to today's largest gray wolves, but they had bone-crushing jaws and may have focused on big prey like horses, bison, ground sloths, and mastodons.

Dire wolf fossils suggest a strong resemblance to modern gray wolves and based on morphological similarities, scientists have long assumed that the two were closely related. In early 2021, however, scientists revealed surprising results after sequencing DNA from dire wolf subfossils. Dire wolves and gray wolves are only very distant cousins, as reported in the journal *Nature*, and their similarities seem to be the result of convergent evolution rather than close relations. Dire wolf DNA indicates a 'highly divergent lineage' that split from living canids 5.7 million years ago with no evidence of interbreeding with any living canid species.

'Alpha Wolves' Are Just Moms and Dads

Gray wolves usually live in packs of six to 10 individuals, led by a dominant breeding pair. You may have heard someone refer to these pack leaders as 'alpha wolves,' or males and females who supposedly gain dominance by fighting within their packs, eventually becoming the group's leaders and exclusive breeders. This view is widespread, and misleading.

Many wolf experts now consider 'alpha wolf' an outdated term, arguing that it doesn't accurately describe how a wolf pack works. One such expert is L. David Mech, a renowned biologist who helped popularize the idea decades ago but now discourages its use. We now know that 'alpha wolves' are actually just parents, Mech explains, and the other pack members are their offspring. Wolves often mate for life, and their family unit can include a mix of juveniles and young adults from multiple breeding seasons.

"'Alpha' implies competing with others and becoming top dog by winning a contest or battle," Mech writes on his website. "However, most wolves who lead packs achieved their position simply by mating and producing pups, which then became their pack. In other words, they are merely breeders, or parents, and that's all we call them today."

Wolves Are Family Animals

Adult gray wolves can survive on their own and may need to for a while after leaving their birth packs. Wolves are highly social and often mate for life once they find a partner. This marks the beginning of a new wolf pack, or nuclear family, the basic social unit for wolves. Both gray and red wolves breed once per year in late winter or early spring, and both have a gestation period of about 63 days. They generally have four to six pups in a litter, born blind, deaf, and heavily dependent on their mother. Wolf pups are cared for by all members of the pack, though, including their parents and older siblings. They develop quickly, exploring outside the den after three weeks and growing to nearly adult size within six months. Wolves reach maturity at 10 months but may stay with their parents for a few years before moving out.

They're Skilled Communicators, Too

Wolves do howl at night, but contrary to popular belief, these soulful calls have nothing to do with the moon. They convey long-distance messages to other wolves, who may be able to hear them from up to 10 miles away. Howling can help wolves assemble their pack, locate missing members, or defend territory, among other purposes.

Wolves also make other vocalizations to communicate, such as growling, barking, whining, and whimpering. They use body language, too, including eye contact, facial expressions, and body posturing. These silent communication channels can be useful when hunting, a 'gaze signal,' for example, may help wolves coordinate during group hunts without making sounds that would alert their prey.

Wolves' powerful sense of smell also plays a key role in their communication, letting them share information through multiple types of scent marking, including raised-leg urination, squat urination, defecation, and scratching.

People and Dogs Seem to Stress Wolves Out

We may not fully understand the emotional experience of another species, but studying cortisol levels in fecal samples is how scientists can estimate stress in wild animals. Comparing those hormone levels with other data about animals' daily lives might point to sources of stress. In one study of 450 fecal samples from 11 wolf packs, for example, researchers found the death of a pack member likely induces 'important stress in the remainder of the social unit.' Other research suggests that wolves may be stressed by the presence of humans, at least in some contexts. They don't seem to like snowmobiles, according to a study conducted at three U.S. national parks, where gray wolves' fecal glucocorticoid levels were higher in areas and times of heavy snowmobile use. The presence of a local free-ranging dog population has also been linked to higher stress in wolves.

Wolves Don't Really Howl at the Moon

The media has made it a mainstream idea that wolves howl at the full moon but this is untrue. Wolves howl to communicate with their pack or to scare off other wolves. And these howls go far, they can be heard as far as 10 miles away.

Wolves Need a Lot of Space

Wolf packs need large territories to supply them with enough prey, but the size can vary widely depending on factors such as climate, terrain, prey abundance, and the presence of other predators. Gray wolf territories range from 50 to 1,000 square miles, according to the U.S. Fish and Wildlife Service. Wolves can cover large areas while hunting, traveling up to 30 miles daily. They primarily trot at about 5 mph but can run as fast as 40 mph for short distances.

Dogs Are Genetically Similar to Wolves

Dogs are descendants of wolves and there's science behind it: the two creatures share 99.8% of the same DNA. So, while dogs are domesticated and wolves are not, they are more similar than you'd think!

Wolves Help Regulate Their Ecosystems

Like many apex predators, wolves play important ecological roles in their habitats. A widely cited example occurred about a century ago in Yellowstone National Park, where native gray wolves were eliminated by 1920. Initially viewed as a benefit, the loss of wolves lost its luster as the park's elk population exploded.

Without wolves to reduce their numbers or chase them away from prime feeding areas, Yellowstone's growing elk herds began to feast unsustainably. They ate young aspen trees too quickly for groves to regenerate, devoured food sources needed by other species, and stripped important vegetation along the banks of streams and wetlands, increasing erosion. Since the reintroduction of wolves to Yellowstone began in 1995, elk have declined from a high of 20,000 to fewer than 5,000. Research has shown continued recovery of aspen, cottonwood, and willow trees, as well as a rebound for beavers and riparian songbirds in areas where they had been declining or missing since the 1930s. Today, Yellowstone National Park is home to more than 90 wolves in eight packs, while several hundred more live throughout the surrounding ecosystem.

When did dogs split from wolves?

It's believed that dogs split from their wolf ancestors 27,000 to 40,000 years ago. They were certainly solidified as pets by the time of the first known dog burial 14,200 years ago.

What's the difference between a wolf and wolverine?

Despite the similarities in their names, wolves and wolverines are vastly different. Wolves are canids whereas wolverines are weasels found in the arctic. The latter is rarer to see (because of its high north distribution) and looks more like a bear than a dog.

How smart are wolves?

Despite countless intelligence tests pitting wolves and dogs against each other, the jury remains out on which is truly smarter. What we do know, however, is that wolves are incredibly clever animals with complex social systems. They've demonstrated abilities to educate their kin, care for injured packmates, and play.

rajeshsharma1049@gmail.com

#ONIONS

Sanctified Onions

Quercetin is a flavonoid, natural antioxidant with health benefits

Onions, a common staple in kitchens worldwide, are more than just a flavourful addition to meals. They contain a powerful antioxidant called quercetin, which has been linked to a range of health benefits. Quercetin is a type of flavonoid, a plant compound that is known for its antioxidant, anti-inflammatory, and even potential anti-cancer properties. In this article, we will explore how quercetin in onions can positively impact your health.

What is Quercetin?

Quercetin is a flavonoid found in a variety of fruits, vegetables, and plants. It has been the subject of many studies due to its antioxidant and anti-inflammatory effects. Antioxidants are substances that protect cells from damage caused by free radicals, unstable molecules that can contribute to aging and the development of diseases. By neutralizing these free radicals, quercetin helps prevent oxidative stress, which has been associated with conditions like heart disease, diabetes, and even cancer.

Health Benefits of Quercetin in Onions

1. Powerful Antioxidant Properties

The most well-known benefit of quercetin is its antioxidant activity. Quercetin scavenges harmful free radicals in the body, reducing the oxidative stress that can damage cells and tissues. This antioxidant action helps lower the risk of chronic diseases, such as heart disease and neurodegenerative conditions like Alzheimer's disease. In onions, especially the red and yellow varieties, quercetin concentrations are particularly high, making them a valuable addition to your diet.

2. Anti-Inflammatory Effects

Chronic inflammation is linked to many serious health conditions, including arthritis, cardiovascular disease, and even cancer. Quercetin in onions has been shown to help reduce inflammation by inhibiting inflammatory markers in the body. It works by blocking certain enzymes and pathways that are involved in the inflammatory process, such as COX-2 (cyclooxygenase-2) and NF-kB (a key protein complex involved in regulating the immune response). This makes onions an effective natural remedy for reducing inflammation and supporting overall health.

3. Supports Heart Health

One of the most promising areas of research for quercetin is its role in supporting heart health. Quercetin has been found to have several positive effects on the cardiovascular system. It helps improve blood vessel function, which is essential for maintaining healthy blood pressure. It also helps reduce the oxidation of LDL cholesterol, which can contribute to arterial plaque buildup and increase the risk of atherosclerosis (narrowing of the arteries). Moreover, quercetin can help reduce high blood pressure, another important risk factor for heart disease. Incorporating onions into your diet may help protect your heart and reduce your risk of cardiovascular disease.

4. Boosts Immune Function

Quercetin's antioxidant properties also play a role in strengthening the immune system. By reducing oxidative stress and inflammation, quercetin helps the immune system function more efficiently. Additionally, quercetin has been shown to have antiviral properties, helping the body fight off common colds and other viral infections. In particular, quercetin may help inhibit the replication of viruses, making it an excellent food to include in your diet during cold and flu season.

5. Cancer Prevention

Research suggests that quercetin might help protect against certain types of cancer. Its antioxidant properties play a role in neutralizing free radicals that can damage DNA and trigger cancerous cell mutations. Moreover, quercetin has been found to have anti-cancer properties by inhibiting the growth of cancer cells and promoting apoptosis (programmed cell death) in cancerous cells. Studies have shown that quercetin can help suppress the growth of breast, colon, and lung cancer cells, making onions an excellent addition to a cancer-prevention diet.

6. Helps Manage Blood Sugar Levels

For individuals with type 2 diabetes or those at risk of developing the condition, quercetin in onions can be beneficial. Studies have indicated that quercetin may help regulate blood sugar levels by improving insulin sensitivity. This is particularly important for managing diabetes and preventing hyperglycemia (high blood sugar). By incorporating quercetin-rich foods like onions into your meals, you may help maintain more stable blood sugar levels.

7. Allergy Relief

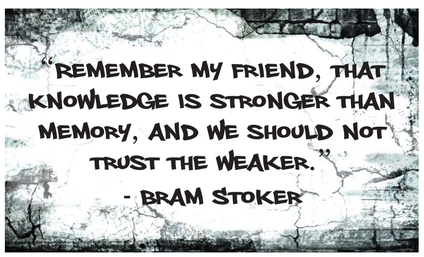
Quercetin is also known for its natural antihistamine properties. Histamines are chemicals that are released during allergic reactions, causing symptoms like sneezing, itchiness, and swelling. Quercetin has been shown to block the release of histamines from cells, reducing the severity of allergic reactions, particularly hay fever and seasonal allergies. Including quercetin-rich foods like onions in your diet may help alleviate allergy symptoms, especially during allergy season.

How to Get the Most Quercetin from Onions

To reap the full benefits of quercetin, it's important to consider how you prepare and eat onions. Here are some tips.

1. **Raw or Lightly Cooked:** Quercetin can be degraded by high heat, so eating raw onions or lightly cooking them is one way to retain the most quercetin. Adding onions to salads or using them as a topping for sandwiches or burgers can help preserve their antioxidant power.
2. **Use in Soups and Stews:** If you prefer cooked onions, adding them to soups or stews is a great way to incorporate them into your diet. Just be mindful not to overcook them, as prolonged cooking at high temperatures can reduce their quercetin content.
3. **Combine with Other Healthy Foods:** Pair onions with other quercetin-rich foods like apples, berries, and citrus fruits. Eating a wide variety of fruits and vegetables ensures that you get the full spectrum of health benefits.
4. **Raw Onion Juice:** For a more concentrated dose of quercetin, some people opt for raw onion juice. While it may be strong in flavour, it provides a potent way to access the health benefits of quercetin.

THE WALL



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