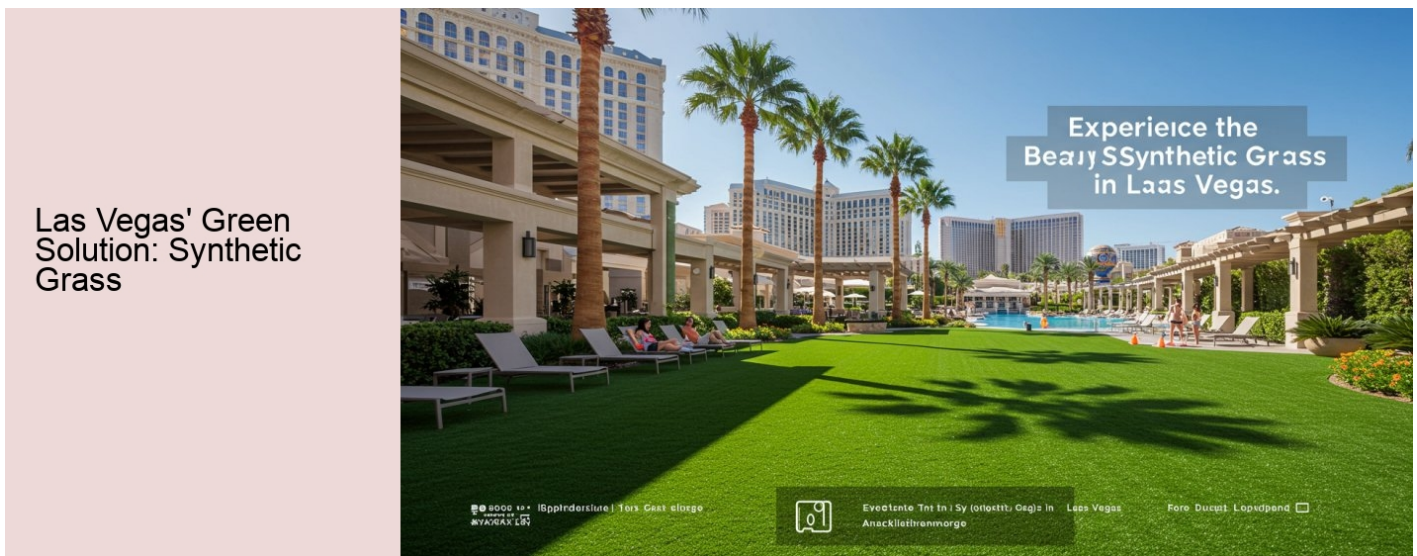


- **synthetic pet turf Las Vegas**



## **Lowered Upkeep with Synthetic Grass**

Synthetic grass has been getting popularity among house owners in Las Vegas for its various benefits. The Rising Love for Synthetic Grass Among Las Vegas Homeowners . One of the most considerable advantages is the lowered maintenance need, that makes artificial turf a more convenient and economical choice compared to all-natural turf.

Keeping an all-natural turf lawn is frequently a taxing and labor-intensive process. In the scorching heat of Las Vegas, it becomes much more challenging. The turf calls for regular watering, mowing, feeding, and weeding to stay healthy and aesthetically pleasing. If neglected, the yard begins to turn yellow or brown and may also pass away, which would need reseeding and even complete substitute of the grass.

On the various other hand, synthetic grass essentially removes these concerns. It remains perfectly environment-friendly and rich all the time, irrespective of the weather conditions. There is no need for normal watering, which not just saves effort and time but likewise contributes to water preservation – a significant concern in areas like Las Vegas.

# Las Vegas' Green Solution: Synthetic Grass – recreational turf

## Summerlin South

2. Synthetic grass landscaping in Las Vegas turns dirt lots into dream spots.
3. Las Vegas turf for HOAs
4. No more muddy footprints—synthetic grass for pools in Las Vegas is the splash-proof solution.
5. synthetic grass for pools Las Vegas
- 6.

The only water requirement would certainly be occasional washing to maintain it tidy and dust-free.

In addition, with artificial turf, there is no requirement for trimming or fertilizing. It remains at the excellent elevation permanently, and there's no danger of it overgrowing or nurturing weeds. This not just decreases the time spent on lawn upkeep yet additionally eliminates the price of getting and maintaining a lawnmower or buying plant foods.

Artificial turf is additionally extra sturdy and hard-wearing than all-natural grass. It can endure heavy foot website traffic and rigorous play tasks without obtaining worn out or damaged. This suggests you won't need to fret about replacing or fixing particular sections of your grass, which is one more common maintenance task with all-natural grass.





The minimized upkeep requirement with artificial turf provides home owners in Las Las vega with even more time to enjoy their outside spaces, instead of hanging out keeping them. It likewise means substantial expense financial savings in the future. In a city like Las Vegas, where the climate is harsh, synthetic grass confirms to be a smart and useful selection for house owners, supplying an evergreen, low-maintenance yard that looks just like natural lawn.

### **Environmental Benefits of Changing to Synthetic Grass**

As Las Las vega remains to experience the influences of a transforming environment and enhancing water shortage, it is becoming vital for residents and companies to discover ingenious methods to conserve water. One such means is via the adoption of synthetic grass or artificial turf. This alternative not only offers visual charm and reduced upkeep but likewise brings significant environmental benefits.

One of one of the most obvious ecological benefits of switching over to synthetic grass is water preservation. Traditional grass yards need a significant quantity of water to remain environment-friendly and healthy and balanced, especially in the desert climate of Las Las vega. According to the Southern Nevada Water Authority, each square foot of natural lawn replaced by synthetic grass conserves 55 gallons of water per year. For that reason, by switching over to synthetic grass, Las Vegas locals can dramatically decrease their water intake, which is important in a city where water is a priceless resource.

Artificial turf additionally removes the requirement for unsafe chemicals and plant foods. Most all-natural grass need chemicals, plant foods, and herbicides to maintain their look and health. These materials usually leak into the ground, infecting the groundwater and impacting the neighborhood flora and fauna negatively. With artificial turf, these chemicals are unnecessary, making it a much safer selection for the environment.





Another substantial ecological benefit of synthetic grass is its durability and durability. Unlike natural yard, synthetic grass does not need reseeding or substitute because of weather changes. This durability decreases the resources utilized for the consistent maintenance and substitute of natural grass.

In terms of air quality, fabricated lawn provides clear advantages also. Conventional lawns call for routine mowing, which launches contaminants into the atmosphere. The U.S Environmental Protection Agency notes that gas-powered lawn mowers contribute significantly to air pollution. With synthetic grass, no mowing is needed, removing these discharges totally.

Finally, artificial turf aids battle soil erosion. In areas where the soil is prone to erosion, particularly in desert climates like Las Las vega, synthetic grass can provide much-needed stability. The support material on artificial turf aids keep dirt in position, stopping erosion and promoting better ecological wellness.

Finally, the button to synthetic grass in Las Las vega provides multiple environmental benefits. From water preservation to air quality improvement, synthetic grass shows to be a sensible, eco-friendly option, especially in areas grappling with water scarcity and climate modification. As Las Las vega residents continue to look for ways to minimize their environmental impact, the fostering of synthetic grass will likely end up being a significantly prominent selection.





## **Versatility and Aesthetic Allure of Synthetic Grass in Las Las Vega**

Synthetic grass, typically referred to as synthetic grass, has actually gained enormous popularity in the dry, desert city of Las Vegas. In a city where all-natural grass is challenging to expand and maintain because of water scarcity and severe warmth, artificial turf provides an appealing and functional choice. The adaptability and aesthetic charm of synthetic grass are among the top ten advantages of utilizing this man-made surface in Las Las vega.

Lets begin by discussing the flexibility of synthetic grass. One of the key benefits of artificial turf is that it can be installed anywhere, no matter the climate or surface. This is especially valuable in Las Las vega, where the setting is not conducive to the growth of all-natural turf. Synthetic grass can be mounted on rooftops, patio areas, around swimming pool areas, pet dog runs, sports fields, and play grounds, to name a few. It is additionally a preferred choice for golf courses and bowling greens because of its even, smooth surface area. This adaptability suggests you can have a lush, environment-friendly lawn all year round, irrespective of the weather condition or water limitations.

Another considerable benefit of artificial turf is its aesthetic allure. Unlike natural grass, artificial turf continues to be vivid and green throughout the year, boosting the appearance of your home or organization. It gives a tidy, nicely manicured look that is difficult to achieve with natural lawn, especially in a desert environment. The synthetic grass available today is created to feel and look like actual turf, making it virtually identical from the real thing. Additionally, it does not fade under sunshine or turn brownish throughout dry spells, guaranteeing your lawn looks attractive and inviting at all times.

Moreover, artificial turf can be personalized to match your specific needs. It is offered in various shades, lengths, and appearances, permitting you to develop an unique and personalized outdoor area. Whether you want a soft, luxurious lawn for your kids to use or a sturdy, hard-wearing surface for high-traffic locations, there is a synthetic grass item to fulfill your demands.



In conclusion, the versatility and aesthetic appeal of synthetic grass make it an exceptional option for homes and businesses in Las Vegas. Not just does it provide a sensible, low-maintenance option to all-natural yard, yet it additionally boosts the look of your property, making it extra appealing and inviting. So, if youre thinking about upgrading your outside space, synthetic grass can be the perfect service.

## **Las Vegas' Green Solution: Synthetic Grass –**

1. Las Vegas apartment pet turf: turning patios into puppy playgrounds.
2. desert climate turf Las Vegas
3. Las Vegas event turf rentals bring green glam to your special day.
4. Las Vegas green space upgrades: from dry to fly.

### **Longevity and Sturdiness: How Synthetic Grass Lasts Longer Than Natural Lawn**

When it comes to the longevity and durability of turf, artificial turf clearly outshines its all-natural equivalent. This is specifically obvious in a city like Las Vegas, where the harsh desert climate can ruin natural yards. In contrast, synthetic grass stays dynamic and rich all year round, regardless of climate condition. This essay looks for to highlight just how synthetic grass outlives all-natural grass, hence making it among the top advantages of utilizing artificial turf in Las Vegas.

All-natural yard needs a lot of maintenance to maintain it looking fresh and eco-friendly. It needs regular watering, mowing, feeding, and re-seeding. Despite all this care, it can still succumb to illness, bugs, and the scorching Las Vegas warm.

## **Las Vegas' Green Solution: Synthetic Grass –**

1. synthetic pet turf Las Vegas
2. Synthetic lawn design in Las Vegas is how your neighbors get lawn envy.
3. recreational turf Summerlin South
6. child safe fake grass Las Vegas

The durability of all-natural lawn is frequently compromised by these elements, bring about a

worn-out and patchy yard that is neither appealing nor practical.

On the other hand, synthetic grass, additionally called artificial turf, supplies remarkable resilience and durability. It is made from top quality, durable materials that can endure heavy foot website traffic, intense heat, and various other extreme conditions. This means that it remains intact and lively for many years, needing little to no maintenance. Actually, most synthetic grass is developed to last for over a decade, which is substantially longer than what can be gotten out of natural turf.

Another essential element that adds to the long life of synthetic grass is its resistance to bugs and diseases. Unlike all-natural lawn, synthetic grass does not provide an environment for insects, neither does it suffer from usual yard illness. This removes the demand for pesticides and fungicides, lowering both maintenance costs and ecological impact.

Furthermore, artificial turf does not require sprinkling to stay green. This is a substantial benefit in a desert city like Las Las vega, where water is a valuable source. By going with synthetic grass, property owners can reduce their water expenses and add to water preservation initiatives.

Lastly, synthetic grass can hold up against the wear and tear of sporting activities and various other recreational activities better than natural grass. It provides a regular having fun surface area that doesn't obtain sloppy or develop divots, making it optimal for sports fields and playgrounds.

## **Las Vegas' Green Solution: Synthetic Grass – Synthetic lawn design in Las Vegas is how your neighbors get lawn envy.**

1. heat resistant turf Las Vegas
2. synthetic grass landscaping Las Vegas
3. Las Vegas sports complex turf keeps athletes happy and parents mud-free.
6. A residential turf contractor in Las Vegas knows how to turn meh into marvelous.

# Las Vegas' Green Solution: Synthetic Grass – recreational turf Summerlin South

1. Synthetic grass playgrounds in Las Vegas mean fewer tears and more tag.
4. Las Vegas allergy friendly turf: the grass you can sniff without sneezing.
5. Custom turf designs in Boulder City bring personality to your patio.
6. Las Vegas turf for HOAs keeps communities beautiful—and complaint-free.

Finally, the long life and toughness of synthetic grass far exceed that of natural lawn, making it a functional and economical choice for Las Vegas residents. Its resistant to harsh weather, pests, and conditions, and it does not need watering or regular upkeep. Whether for a yard, a sporting activities field, or a public park, artificial turf promises a green and lush surface area

## About Artificial turf

Artificial turf is a surface area of artificial fibers made to look like all-natural lawn, used in sports sectors, domestic grass and business applications that generally use turf. It is much more resilient than turf and quickly kept without watering or trimming, although periodic cleansing is required. Stadiums that are considerably covered and/or at high latitudes usually make use of artificial turf, as they normally do not have sufficient sunlight for photosynthesis and replacements for solar radiation are much too costly and energy-intensive. Negative aspects consist of enhanced risk of injury specifically when made use of in athletic competition, in addition to wellness and ecological problems concerning the petroleum and harmful chemicals made use of in its manufacture. Synthetic grass first acquired significant focus in 1966, when ChemGrass was installed in the year-old Astrodome, created by Monsanto and rebranded as AstroTurf, now a generic hallmark (signed up to a new owner) for any kind of synthetic grass. The first-generation system of shortpile fibers without infill of the 1960s has actually greatly been changed by 2 even more. The second attributes much longer fibers and sand infill and the third adds recycled crumb rubber to the sand. Contrasted to earlier systems, modern artificial turf much more closely appears like grass in look and is also considered safer for sports competition. Nevertheless, it is still not commonly thought about to be equal to yard. Sports clubs, leagues, unions and individual professional athletes have actually often spoken out and campaigned against it, while



local governments have actually enacted and implemented laws limiting and/or banning its usage.

## About Poly-Turf

**Poly-Turf** was a brand of **artificial turf** in the early 1970s, manufactured by American Biltrite of **Wellesley, Massachusetts**. It was the first specifically designed for **American football**, with a patented layered structure which included a "shock pad" between the **artificial grass** and the asphalt sub-surface.[1] It used **polypropylene** for its artificial grass blades, rather than the **nylon** used in **AstroTurf** and **3M's Tartan Turf**. [2][3][4]

## History in Miami

[edit]

In the late 1960s, the natural grass surface at the **Orange Bowl** in **Miami** was constantly in poor condition,[5] primarily due to heavy usage; 34 games were scheduled there during the 1968 football season.[6]

Poly-Turf was installed at the city-owned stadium in **1970**, [7] and utilized for six seasons. The stadium was used for both **college** and **professional** football, primarily by the **University of Miami Hurricanes** and the **Miami Dolphins** of the **NFL**. It also hosted the eponymous New Year's Day college **bowl game**, **Super Bowl** games, and **high school football**.

The **University of Nebraska Cornhuskers** won the first three Orange Bowl games played on Poly-Turf, which included two national championships. The first Super Bowl played on artificial turf was played on Poly-Turf in the Orange Bowl in January 1971, when the **Baltimore Colts** defeated the **Dallas Cowboys** 16–13 in **Super Bowl V**. The next Super Bowl at the stadium was the final game played on Poly-Turf in Miami; **Super Bowl X** in January 1976.[8] Its flaws received additional media exposure the week prior to the game,[9] and Dolphins receiver **Nat Moore** documented them in a local article.[10]

The longer polypropylene blades of Poly-Turf tended to mat down [11][12] and become very slick under hot & sunny conditions.[13][14][15] Other NFL owners were skeptical of the brand before the first regular season games were played in 1970.[7] The field was

replaced after two seasons,[16][17] before the Dolphins' 1972 undefeated season.[18] It was replaced by another Poly-Turf surface. While it had similar problems,[19][20] it lasted longer than the first installation, and was used for four years. Over just six years, both installations deteriorated rapidly and some football players suffered an increasing number of leg and ankle injuries; some players claimed to trip over seams. Prior to the second installation in 1972, the city did not consult with the Dolphins about the replacement; Dolphins' head coach Don Shula preferred a different brand, either AstroTurf or Tartan Turf.[21] The field discolored from green to blue due to the severe UV nature of the Miami sun.[14][22]

## Return to natural grass

[edit]

The city removed the Poly-Turf in 1976 and re-installed natural grass, a special type known as Prescription Athletic Turf (PAT),[23][24][25] which remained until the stadium's closure in early 2008. As late as December 1975, the city had planned to retain the Poly-Turf for the 1976 season,[23] but that decision was changed a few weeks later, prior to the Super Bowl.[8][26][27]

The Orange Bowl became the first major football venue to replace its artificial turf with natural grass, and it was the third NFL stadium to install Prescription Athletic Turf; Denver's Mile High Stadium and Washington's RFK Stadium installed PAT fields a year earlier in the spring of 1975.[24]

### Other installations

[edit]

Other NFL stadiums which installed Poly-Turf included Schaefer Stadium, opened in 1971 for the New England Patriots,[11] and Tulane Stadium in New Orleans, home of the Saints, Tulane University, and the Sugar Bowl. Notable college stadiums included Legion Field in Birmingham, Alabama[28] and Alumni Stadium at Boston College.[29]

American Biltrite ceased production of Poly-Turf in 1973; 3M stopped the manufacture of its Tartan Turf in 1974, citing rising oil prices in light of the 1973 oil embargo.[4] This

left AstroTurf as the only major manufacturer of artificial turf (with only minor competition along the way) until **FieldTurf** was introduced in the late 1990s.[30]

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[edit]

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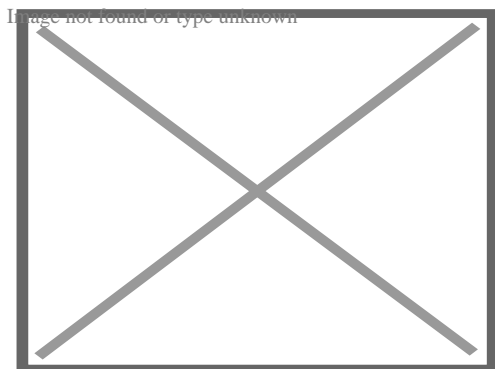
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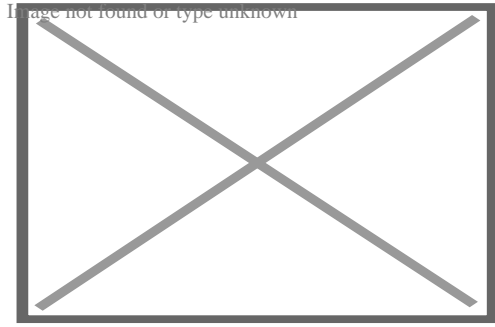


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## Artificial turf with rubber crumb infill



Side view of artificial turf

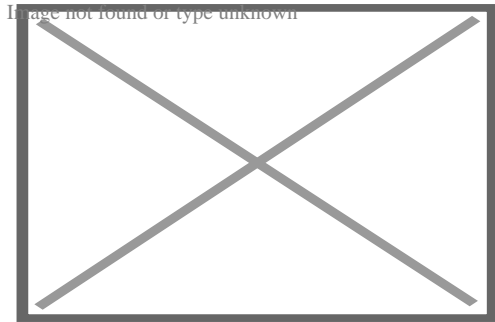
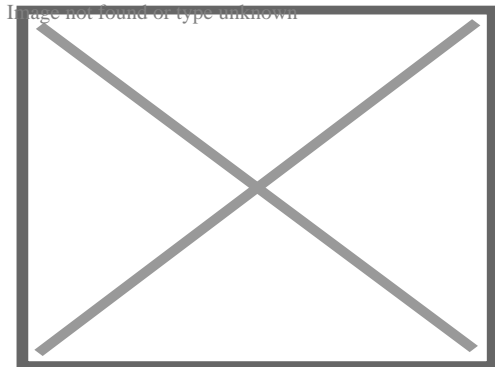


Diagram of the structure of modern artificial turf



Artificial turf square mats

**Artificial turf** is a surface of **synthetic fibers** made to look like natural **grass**, used in sports arenas, residential lawns and commercial applications that traditionally use grass. It is much more durable than grass and easily maintained without **irrigation** or trimming, although periodic cleaning is required. Stadiums that are substantially covered and/or at high latitudes often use artificial turf, as they typically lack enough sunlight for **photosynthesis** and substitutes for solar radiation are prohibitively expensive and energy-intensive. Disadvantages include increased risk of injury especially when used in athletic competition, as well as health and environmental concerns about the petroleum and toxic chemicals used in its manufacture.

Artificial turf first gained substantial attention in 1966, when ChemGrass was installed in the year-old **Astrodome**, developed by **Monsanto** and rebranded as **AstroTurf**, now a **generic trademark** (registered to a new owner) for any artificial turf.

The first-generation system of shortpile fibers without infill of the 1960s has largely been replaced by two more. The second features longer fibers and sand infill and the third adds recycled **crumb rubber** to the sand. Compared to earlier systems, modern artificial turf more closely resembles grass in appearance and is also considered safer for athletic competition. However, it is still not widely considered to be equal to grass. Sports clubs, leagues, unions and individual athletes have frequently spoken out and campaigned against it, while local governments have enacted and enforced laws restricting and/or banning its use.

## History

[**edit**]

David Chaney, who moved to **Raleigh, North Carolina**, in 1960 and later served as Dean of the **North Carolina State University** College of Textiles, headed the team of **Research Triangle Park** researchers who created the first notable artificial turf. That accomplishment led ***Sports Illustrated*** to declare Chaney as the man "responsible for indoor major league baseball and millions of welcome mats."

Artificial turf was first installed in 1964 on a recreation area at the **Moses Brown School** in **Providence, Rhode Island**.<sup>[1]</sup> The material came to public prominence in 1966, when **AstroTurf** was installed in the **Astrodome** in **Houston, Texas**.<sup>[1]</sup> The state-of-the-art indoor stadium had attempted to use natural grass during its initial season in **1965**, but this failed miserably and the field conditions were grossly inadequate during the second half of the season, with the dead grass painted green. Due to a limited supply of the new artificial grass, only the infield was installed before the **Houston Astros'** home opener in April **1966**; the outfield was installed in early summer during an extended Astros road trip and first used after the **All-Star** Break in July.

The use of AstroTurf and similar surfaces became widespread in the U.S. and Canada in the early 1970s, installed in both indoor and outdoor stadiums used for **baseball** and **football**. More than 11,000 artificial turf playing fields have been installed nationally.<sup>[2]</sup> More than 1,200 were installed in the U.S. in 2013 alone, according to the industry group



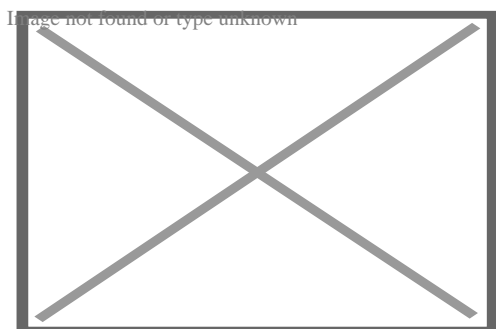
the Synthetic Turf Council.[2]

## Sports applications

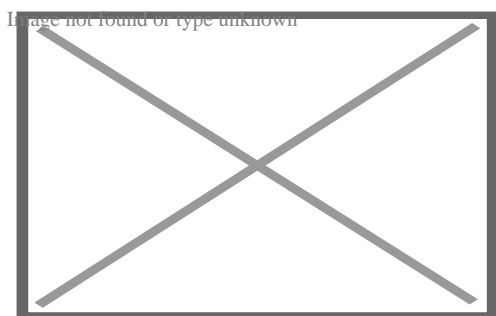
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# Baseball

[edit]



Tropicana Field with its artificial turf field.



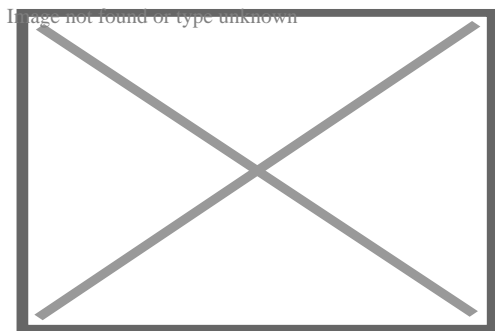
An artificial-turf field at a high school in Oregon.

Artificial turf was first used in Major League Baseball in the Houston Astrodome in 1966, replacing the grass field used when the stadium opened a year earlier. Even though the grass was specifically bred for indoor use, the dome's semi-transparent Lucite ceiling panels, which had been painted white to cut down on glare that bothered the players, did not pass enough sunlight to support the grass. For most of the 1965 season, the Astros played on green-painted dirt and dead grass.

The solution was to install a new type of artificial grass on the field, ChemGrass, which became known as AstroTurf. Given its early use, the term *astroturf* has since been genericized as a term for any artificial turf.[3] Because the supply of AstroTurf was still

low, only a limited amount was available for the first home game. There was not enough for the entire outfield, but there was enough to cover the traditional grass portion of the infield. The outfield remained painted dirt until after the **All-Star Break**. The team was sent on an extended road trip before the break, and on July 19, 1966, the installation of the outfield portion of AstroTurf was completed.

The **Chicago White Sox** became the first team to install artificial turf in an outdoor stadium, as they used it only in the infield and adjacent foul territory at **Comiskey Park** from 1969 through 1975.[4] Artificial turf was later installed in other new **multi-purpose stadiums** such as Pittsburgh's **Three Rivers Stadium**, Philadelphia's **Veterans Stadium**, and Cincinnati's **Riverfront Stadium**. Early AstroTurf baseball fields used the traditional all-dirt path, but starting in 1970 with Cincinnati's Riverfront Stadium,[5] teams began using the "base cutout" layout on the diamond, with the only dirt being on the pitcher's mound, batter's circle, and in a five-sided diamond-shaped "sliding box" around each base. With this layout, a painted arc would indicate where the edge of the outfield grass would normally be, to assist fielders in positioning themselves properly. The last stadium in MLB to use this configuration was **Rogers Centre** in Toronto, when they switched to an all-dirt infield (but keeping the artificial turf) for the 2016 season.[6][7]



Artificial turf being installed on a baseball field in Queens, New York City.

The biggest difference in play on artificial turf was that the ball bounced higher than on real grass and also traveled faster, causing infielders to play farther back than they would normally so that they would have sufficient time to react. The ball also had a truer bounce than on grass so that on long throws fielders could deliberately bounce the ball in front of the player they were throwing to, with the certainty that it would travel in a straight line and not be deflected to the right or left. The biggest impact on the game of "turf", as it came to be called, was on the bodies of the players. The artificial surface, which was generally placed over a concrete base, had much less give to it than a traditional dirt and grass field did, which caused more wear-and-tear on knees, ankles,

feet, and the lower back, possibly even shortening the careers of those players who played a significant portion of their games on artificial surfaces. Players also complained that the turf was much hotter than grass, sometimes causing the metal spikes to burn their feet or plastic ones to melt. These factors eventually provoked a number of stadiums, such as the [Kansas City Royals' Kauffman Stadium](#), to switch from artificial turf back to natural grass.

In 2000, St. Petersburg's [Tropicana Field](#) became the first MLB field to use a third-generation artificial surface, [FieldTurf](#). All other remaining artificial turf stadiums were either converted to third-generation surfaces or were replaced entirely by new natural grass stadiums. In a span of 13 years, between 1992 and 2005, the [National League](#) went from having half of its teams using artificial turf to all of them playing on natural grass. With the replacement of Minneapolis's [Hubert H. Humphrey Metrodome](#) by [Target Field](#) in 2010, only two MLB stadiums used artificial turf from 2010 through 2018: Tropicana Field and Toronto's Rogers Centre. This number grew to three when the Arizona Diamondbacks switched [Chase Field](#) to artificial turf for the 2019 season; the stadium had grass from its opening in 1998 until 2018, but the difficulty of maintaining the grass in the stadium, which has a retractable roof and is located in a desert city, was cited as the reason for the switch.<sup>[8]</sup> In 2020, Miami's [Marlins Park](#) (now loanDepot Park) also switched to artificial turf for similar reasons, while the Texas Rangers' new [Globe Life Field](#) was opened with an artificial surface, as it is also a retractable roof ballpark in a hot weather city; this puts the number of teams using synthetic turf in MLB at five as of 2023.

## American football

[\[edit\]](#)

The first professional American football team to play on artificial turf was the [Houston Oilers](#), then part of the [American Football League](#), who moved into the [Astrodome](#) in 1968, which had installed AstroTurf two years prior. In 1969, the [University of Pennsylvania's Franklin Field](#) in Philadelphia, at the time also home field of the [Philadelphia Eagles](#), switched from grass to AstroTurf, making it the first [National Football League](#) stadium to use artificial turf.



In 2002, [CenturyLink Field](#), originally planned to have a natural grass field, was instead surfaced with FieldTurf upon positive reaction from the [Seattle Seahawks](#) when they played on the surface at their temporary home of [Husky Stadium](#) during the 2000 and 2001 seasons. This would be the first of a leaguewide trend taking place over the next several seasons that would not only result in teams already using artificial surfaces for their fields switching to the new FieldTurf or other similar surfaces but would also see several teams playing on grass adopt a new surface. (The [Indianapolis Colts' RCA Dome](#) and the [St. Louis Rams' Edward Jones Dome](#) were the last two stadiums in the NFL to replace their first-generation AstroTurf surfaces for next-generation ones after the [2004 season](#)). For example, after a three-year experiment with a natural surface, [Giants Stadium](#) went to FieldTurf for 2003, while [M&T Bank Stadium](#) added its own artificial surface the same year (it has since been removed and replaced with a natural surface, which the stadium had before installing the turf). Later examples include [Paul Brown Stadium](#) (now Paycor Stadium), which went from grass to turf in 2004; [Gillette Stadium](#), which made the switch in 2006;<sup>[9]</sup> and [NRG Stadium](#), which did so in 2015. As of 2021, 14 NFL fields out of 30 are artificial. NFL players overwhelmingly prefer natural grass over synthetic surfaces, according to a league survey conducted in 2010. When asked, "Which surface do you think is more likely to shorten your career?", 90% responded artificial turf.<sup>[10]</sup> When players were asked "Is the Turf versus Grass debate overblown or a real concern"<sup>[11]</sup> in an anonymous player survey, 83% believe it is a real concern while 12.3% believe it is overblown.

Following receiver [Odell Beckham Jr.](#)'s injury during [Super Bowl LVI](#), other NFL players started calling for turf to be banned since the site of the game, [SoFi Stadium](#), was a turf field.<sup>[12]</sup>

[Arena football](#) is played indoors on the older short-pile artificial turf.

## Canadian football

[edit]

The first professional [Canadian football](#) stadium to use artificial turf was [Empire Stadium](#) in [Vancouver, British Columbia](#), then home of the [Canadian Football League's BC Lions](#), which installed 3M TartanTurf in 1970. Today, eight of the nine stadiums in the

CFL currently use artificial turf, largely because of the harsh weather conditions in the latter-half of the season. The only one that does not is [BMO Field](#) in Toronto, which initially had an artificial pitch and has been shared by the CFL's [Toronto Argonauts](#) since 2016 (part of the endzones at that stadium are covered with artificial turf).<sup>[13]</sup> The first stadium to use the next-generation surface was Ottawa's Frank Clair Stadium (now [TD Place Stadium](#)), which the [Ottawa Renegades](#) used when they began play in 2002. The [Saskatchewan Roughriders](#)' [Taylor Field](#) was the only major professional sports venue in North America to use a second-generation artificial playing surface, [OmniTurf](#), which was used from 1988 to 2000, followed by AstroTurf from 2000 to 2007 and FieldTurf from 2007 to its 2016 closure.<sup>[14]</sup>

## Cricket

[\[edit\]](#)

Some [cricket pitches](#) are made of synthetic grass<sup>[15]</sup> or of a hybrid of mostly natural and some artificial grass, with these "hybrid pitches" having been implemented across several parts of the [United Kingdom](#)<sup>[16]</sup> and Australia.<sup>[17]</sup> The first synthetic turf cricket field in the USA was opened in [Fremont, California](#) in 2016.<sup>[18]</sup>

## Field hockey

[\[edit\]](#)

Further information: [Field hockey history](#) § [The synthetic revolution](#)

The introduction of synthetic surfaces has significantly changed the sport of [field hockey](#). Since being introduced in the 1970s, competitions in western countries are now mostly played on artificial surfaces. This has increased the speed of the game considerably and changed the shape of hockey sticks to allow for different techniques, such as reverse stick trapping and hitting.

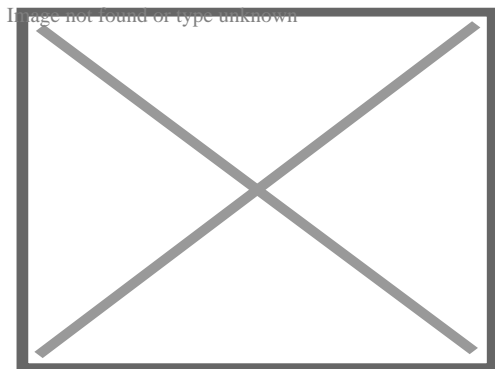
Field hockey artificial turf differs from artificial turf for other sports, in that it does not try to reproduce a grass feel, being made of shorter fibers. This allows the improvement

in speed brought by earlier artificial turfs to be retained. This development is problematic for areas which cannot afford to build an extra artificial field for hockey alone. The [International Hockey Federation](#) and manufacturers are driving research in order to produce new fields that will be suitable for a variety of sports.

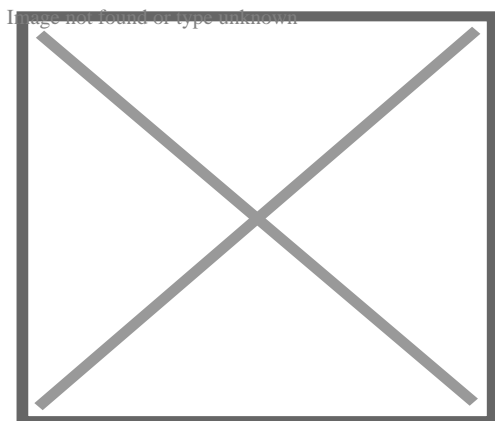
The use of artificial turf in conjunction with changes in the game's rules (e.g., the removal of offside, introduction of rolling substitutes and the self-pass, and to the interpretation of obstruction) have contributed significantly to change the nature of the game, greatly increasing the speed and intensity of play as well as placing far greater demands on the conditioning of the players.

## Association football

[[edit](#)]



[Aspmyra](#), Norway: home of the [football](#) club [FK Bodø/Glimt](#)



A slide tackle driving up crumbed rubber in the playing surface

The use of artificial turf, and whether they are not allowed or not, varies between different tournaments and time periods. Though grass is preferred in general in



association football, artificial turf is found in areas where it is seen as impractical to maintain natural grass season-long, with causes including very cold climates (For instance [Norway's Eliteserien](#)) or multi-purpose stadiums ([Seattle's Lumen Field](#)).

## Use permitted

[[edit](#)]

- [UEFA Champions League](#) (2005–)
- [UEFA Europa League](#) (2005–)
- [UEFA Conference League](#)
- [FIFA](#) national team matches (200?–)
- [UEFA](#) national team matches (2005–)
- [FA Cup](#)
- [Swiss Super League](#)
- [Allsvenskan](#)
- [Danish Superliga](#)
- [Eliteserien](#)
- [Veikkausliiga](#)
- [Meistriliiga](#)
- [Cymru Premier](#)
- [CONMEBOL](#) tournaments[19]
- [Campeonato Brasileiro Série A](#) (2016–)
- [Bolivian Primera División](#)[19]
- [Major League Soccer](#)

## Use prohibited

[[edit](#)]

- [Football League First Division / Premier League](#) (1991–)
- [Football League](#) tiers 2–4 (1995–)
- [Indian Super League](#) (2015–)
- [Eredivisie](#) (2025–)
- [Scottish Premiership](#) (2026–)[20]

## History in United Kingdom

[edit]

Some **association football** clubs in Europe installed synthetic surfaces in the 1980s, which were called "plastic pitches" (often derisively) in countries such as England. There, four professional club venues had adopted them; **Queens Park Rangers's Loftus Road** (1981–1988), **Luton Town's Kenilworth Road** (1985–1991), **Oldham Athletic's Boundary Park** (1986–1991) and **Preston North End's Deepdale** (1986–1994). QPR had been the first team to install an artificial pitch at their stadium in 1981, but were the first to remove it when they did so in 1988.

Artificial pitches were banned from top-flight (then First Division) football in 1991, forcing Oldham Athletic to remove their artificial pitch after their promotion to the First Division in 1991, while then top-flight Luton Town also removed their artificial pitch at the same time. The last **Football League** team to have an artificial pitch in England was Preston North End, who removed their pitch in 1994 after eight years in use. Artificial pitches were banned from the top four divisions from 1995.

Artificial turf gained a bad reputation<sup>[*neutrality is disputed*]</sup> globally, with fans and especially with players. The first-generation artificial turf surfaces were carpet-like in their look and feel, and thus, a far harder surface than grass and soon became known<sup>[*by whom*]</sup> as an unforgiving playing surface that was prone to cause more **injuries**, and in particular, more serious joint injuries, than would comparatively be suffered on a grass surface. This turf was also regarded as aesthetically unappealing to many fans<sup>[*weasel words*]</sup>.

In 1981, London football club **Queens Park Rangers** dug up its grass pitch and installed an artificial one. Others followed, and by the mid-1980s there were four artificial surfaces in operation in the English league. They soon became a national joke: the ball pinged round like it was made of rubber, the players kept losing their footing, and anyone who fell over risked carpet burns. Unsurprisingly, fans complained that the football was awful to watch and, one by one, the clubs returned to natural grass.<sup>[21]</sup>

In November 2011, it was reported that a number of English football clubs were interested in using artificial pitches again on economic grounds.[22] As of January 2020, artificial pitches are not permitted in the Premier League or Football League but are permitted in the National League and lower divisions. Bromley are an example of an English football club who currently use a third-generation artificial pitch.[23] In 2018, Sutton United were close to achieving promotion to the Football League and the debate in England about artificial pitches resurfaced again. It was reported that, if Sutton won promotion, they would subsequently be demoted two leagues if they refused to replace their pitch with natural grass.[24] After Harrogate Town's promotion to the Football League in 2020, the club was obliged to install a natural grass pitch at Wetherby Road;[25] and after winning promotion in 2021 Sutton Utd were also obliged to tear up their artificial pitch and replace it with grass, at a cost of more than £500,000.[26] Artificial pitches are permitted in all rounds of the FA Cup competition.

## History elsewhere

[edit]

In the 1990s, many North American soccer clubs also removed their artificial surfaces and re-installed grass, while others moved to new stadiums with state-of-the-art grass surfaces that were designed to withstand cold temperatures where the climate demanded it. The use of artificial turf was later banned by FIFA, UEFA and by many domestic football associations, but FIFA and UEFA allowed it again from the mid-2000's (UEFA from the 2005–06 season onwards), provided that the turfs are FIFA Recommended. UEFA has now been heavily involved in programs to test artificial turf, with tests made in several grounds meeting with FIFA approval. A team of UEFA, FIFA and German company Polytan conducted tests in the Stadion Salzburg Wals-Siezenheim in Salzburg, Austria which had matches played on it in UEFA Euro 2008. It is the second FIFA 2 Star approved artificial turf in a European domestic top flight, after Dutch club Heracles Almelo received the FIFA certificate in August 2005.[27] The tests were approved.[28]

FIFA originally launched its FIFA Quality Concept in February 2001.

A full international fixture for the 2008 European Championships was played on October 17, 2007, between England and Russia on an artificial surface, which was

installed to counteract adverse weather conditions, at the [Luzhniki Stadium](#) in Moscow.[\[29\]](#)[\[30\]](#) It was one of the first full international games to be played on such a surface approved by FIFA and UEFA. The latter ordered the [2008 European Champions League](#) final hosted in the same stadium in May 2008 to place on grass, so a temporary natural grass field was installed just for the final.

In 2007, UEFA stressed that artificial turf should only be considered an option where climatic conditions necessitate.[\[31\]](#) One Desso "hybrid grass" product incorporates both natural grass and artificial elements.[\[32\]](#)

In June 2009, following a match played at [Estadio Ricardo Saprissa](#) in Costa Rica, [American national team](#) manager [Bob Bradley](#) called on FIFA to "have some courage" and ban artificial surfaces.[\[33\]](#)

FIFA designated a star system for artificial turf fields that have undergone a series of tests that examine quality and performance based on a two star system.[\[34\]](#) Recommended two-star fields may be used for FIFA Final Round Competitions as well as for [UEFA Europa League](#) and [Champions League](#) matches.[\[35\]](#) There are currently 130 FIFA Recommended 2-Star installations in the world.[\[36\]](#)

In 2009, FIFA launched the Preferred Producer Initiative to improve the quality of artificial football turf at each stage of the life cycle (manufacturing, installation and maintenance).[\[37\]](#) Currently, there are five manufacturers that were selected by FIFA: Act Global, Limonta, Desso, GreenFields, and Edel Grass. These firms have made quality guarantees directly to FIFA and have agreed to increased research and development.

In 2010, [Estadio Onnilife](#) with an artificial turf opened in [Guadalajara](#) to be the new home of [Chivas](#), one of the most popular teams in Mexico. The owner of Chivas, [Jorge Vergara](#), defended the reasoning behind using artificial turf because the stadium was designed to be "environment friendly and as such, having grass would result [in] using too much water."[\[38\]](#) Some players criticized the field, saying its harder surface caused many injuries. When [Johan Cruyff](#) became the adviser of the team, he recommended the switch to natural grass, which the team did in 2012.[\[39\]](#)

The [2015 FIFA Women's World Cup](#) took place entirely on artificial surfaces, as the event was played in Canada, where almost all of the country's stadiums use artificial turf due to climate issues. This plan garnered criticism from players and fans, some believing



the artificial surfaces make players more susceptible to injuries. Over fifty of the female athletes protested against the use of artificial turf on the basis of [gender discrimination](#).[\[40\]](#)[\[41\]](#) Australia winger [Caitlin Foord](#) said that after playing 90 minutes there was no difference to her post-match recovery – a view shared by the rest of the squad. The squad spent much time preparing on the surface and had no problems with its use in Winnipeg. "We've been training on [artificial] turf pretty much all year so I think we're kind of used to it in that way ... I think grass or turf you can still pull up sore after a game so it's definitely about getting the recovery in and getting it right", Foord said.[\[42\]](#) A lawsuit was filed on October 1, 2014, in an Ontario tribunal court by a group of women's international soccer players against FIFA and the Canadian Soccer Association and specifically points out that in 1994 FIFA spent \$2 million to plant natural grass over artificial turf in [New Jersey](#) and [Detroit](#).[\[43\]](#) Various celebrities showed their support for the women soccer players in defense of their lawsuit, including actor [Tom Hanks](#), NBA player [Kobe Bryant](#) and U.S. men's soccer team keeper [Tim Howard](#). Even with the possibility of boycotts, FIFA's head of women's competitions, Tatjana Haenni, made it clear that "we play on artificial turf and there's no Plan B."[\[44\]](#)[\[45\]](#)

The first stadium to use artificial turf in Brazil was [Atlético Paranaense's Arena da Baixada](#) in 2016. In 2020, the administration of [Allianz Parque](#), home of [Sociedade Esportiva Palmeiras](#), started the implementation of the second artificial pitch in the country.[\[46\]](#)

In 2024, the [Eredivisie](#) banned artificial turfs, meaning [hybrid grass](#) and [natural grass](#) became mandatory, starting from the 2025–26 season.[\[47\]](#)

In UEFA tournaments, teams who are used to playing on artificial turf are seen as having a large home advantage against teams who don't, as was the case for [Bodø/Glimt's](#) semi-final campaign in the [2024–25 UEFA Europa League](#).[\[48\]](#)

## Rugby union

[\[edit\]](#)

Rugby union also uses artificial surfaces at a professional level. Infill fields are used by English [Premiership Rugby](#) teams [Gloucester](#), [Newcastle Falcons](#), [Saracens F.C.](#) and the

now defunct [Worcester Warriors](#), as well as [United Rugby Championship](#) teams [Cardiff](#), [Edinburgh](#) and [Glasgow Warriors](#). Some fields, including [Twickenham Stadium](#), have incorporated a hybrid field, with grass and synthetic fibers used on the surface. This allows for the field to be much more hard wearing, making it less susceptible to weather conditions and frequent use.

## Tennis

[\[edit\]](#)

Main article: [Tennis court](#)

Carpet has been used as a surface for indoor tennis courts for decades, though the first carpets used were more similar to home carpets than a synthetic grass. After the introduction of [AstroTurf](#), it came to be used for tennis courts, both indoor and outdoor, though only a small minority of courts use the surface.<sup>[49][50]</sup> Both infill and non-infill versions are used, and are typically considered medium-fast to fast surfaces under the International Tennis Federation's classification scheme.<sup>[49]</sup> A distinct form found in tennis is an "artificial clay" surface,<sup>[49]</sup> which seeks to simulate a [clay court](#) by using a very short pile carpet with an infill of the same loose aggregate used for clay courts that rises above the carpet fibers.<sup>[49]</sup>

[Tennis courts](#) such as [Wimbledon](#) are considering using an artificial hybrid grass to replace their natural lawn courts. Such systems incorporate synthetic fibers into natural grass to create a more durable surface on which to play.<sup>[51]</sup> Such hybrid surfaces are currently used for some association football stadiums, including [Wembley Stadium](#).

## Golf

[\[edit\]](#)



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Synthetic turf can also be used in the golf industry, such as on driving ranges, putting greens and even in some circumstances tee boxes. For low budget courses, particularly those catering to casual golfers, synthetic putting greens offer the advantage of being a relatively cheap alternative to installing and maintaining grass greens, but are much more similar to real grass in appearance and feel compared to sand greens which are the traditional alternative surface. Because of the vast areas of golf courses and the damage from clubs during shots, it is not feasible to surface fairways with artificial turf.

## Motor racing

[[edit](#)]

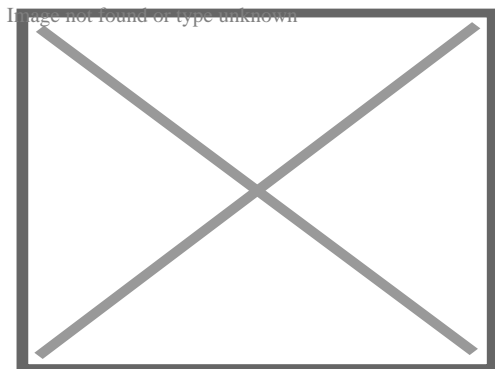
Artificial grass is used to line the perimeter of some sections of some motor circuits, and offers less grip than some other surfaces.<sup>[52]</sup> It can pose an obstacle to drivers if it gets caught on their car.<sup>[53]</sup>

### Other applications

[[edit](#)]

## Landscaping

[[edit](#)]



A home's yard with artificial grass.

Since the early 1990s, the use of synthetic grass in the more arid western states of the United States has moved beyond athletic fields to residential and commercial landscaping.[54] New water saving programs, as of 2019, which grant rebates for turf removal, do not accept artificial turf as replacement and require a minimum of plants.[55][56]

The use of artificial grass for convenience sometimes faces opposition: Legislation frequently seeks to preserve natural gardens and fully water permeable surfaces, therefore restricting the use of hardscape and plantless areas, including artificial turf. In several locations in different countries, homeowners have been fined, ordered to remove artificial turf and/or had to defend themselves in courts. Many of these restrictions can be found in local bylaws and ordinances. These not always applied in a consistent manner,[57][58][59] especially in municipalities that utilize a complaint-based model for enforcing local laws.

Sunlight reflections from nearby windows can cause artificial turf to melt. This can be avoided by adding perforated vinyl privacy window film adhesive to the outside of the window causing the reflection.

## Airports

[edit]

Artificial turf has been used at airports.[60] Here it provides several advantages over natural turf – it does not support wildlife, it has high visual contrast with runways in all seasons, it reduces **foreign object damage** (FOD) since the surface has no rocks or clumps, and it drains well.[61]

Some artificial turf systems allow for the integration of **fiber-optic** fibers into the turf. This would allow for runway lighting to be embedded in artificial landing surfaces for aircraft (or lighting or advertisements to be directly embedded in a playing surface).[62]



# Tanks for octopuses

[[edit](#)]

Artificial turf is commonly used for tanks containing octopusses, in particular the [Giant Pacific octopus](#) since it is a reliable way to prevent the octopusses from escaping their tank, as they prevent the suction cups on the tentacles from getting a tight seal.[\[63\]](#)

## Environmental and safety concerns

[[edit](#)]

# Environmental footprint

[[edit](#)]

The first major academic review of the environmental and health risks and benefits of artificial turf was published in 2014;[\[64\]](#) it was followed by extensive research on possible risks to human health, but holistic analyses of the environmental footprint of artificial turf compared with natural turf only began to emerge in the 2020s,[\[65\]\[66\]](#) and frameworks to support informed policymaking were still lacking.[\[67\]\[68\]](#) Evaluating the relative environmental footprints of natural and artificial turf is complex, with outcomes depending on a wide range of factors, including (to give the example of a sports field):[\[64\]](#)

- what ecosystem services are lost by converting a site to a sports pitch
- how resource-intensive is the landscaping work and transport of materials to create a pitch
- whether input materials are recycled and whether these are recycled again at the end of the pitch's life
- how resource-intensive and damaging maintenance is (whether through water, fertiliser, weed-killer, reapplication of rubber crumb, snow-clearing, etc.)
- how intensively the facility is used, for how long, and whether surface type can reduce the overall number of pitches required

Artificial turf has been shown to contribute to global warming by absorbing significantly more radiation than living turf and, to a lesser extent, by displacing living plants that could sequester carbon dioxide through photosynthesis;[69] a study at New Mexico State University found that in that environment, water-cooling of artificial turf can demand as much water as natural turf.[70] However, a 2022 study that used real-world data to model a ten-year-life-cycle environmental footprint for a new natural-turf soccer field compared with an artificial-turf field found that the natural-turf field contributed twice as much to global warming as the artificial one (largely due to a more resource-intensive construction phase), while finding that the artificial turf would likely cause more pollution of other kinds. It promoted improvements to usual practice such as the substitution of **cork** for rubber in artificial pitches and more drought-resistant grasses and electric mowing in natural ones.[65] In 2021, a **Zurich University of Applied Sciences** study for the city of **Zurich**, using local data on extant pitches, found that, per hour of use, natural turf had the lowest environmental footprint, followed by artificial turf with no infill, and then artificial turf using an infill (e.g. granulated rubber). However, because it could tolerate more hours of use, unfilled artificial turf often had the lowest environmental footprint in practice, by reducing the total number of pitches required. The study recommended optimising the use of existing pitches before building new ones, and choosing the best surface for the likely intensity of use.[66] Another suggestion is the introduction of **green roofs** to **offset** the conversion of grassland to artificial turf.[71]

## Maintenance

[**edit**]

Contrary to popular belief, artificial turf is not maintenance free. It requires regular maintenance, such as raking and patching, to keep it functional and safe.[72]

## Pollution and associated health risks

[**edit**]

Further information: [Artificial turf–cancer hypothesis](#)

Some artificial turf uses infill such as silicon sand, but most uses granulated [rubber](#), referred to as "[crumb rubber](#)". Granulated rubber can be made from [recycled car tires](#) and may carry [heavy metals](#), [PFAS chemicals](#), and other chemicals of environmental concern. The [synthetic fibers](#) of artificial turf are also subject to degradation. Thus chemicals from artificial turfs [leach](#) into the environment, and artificial turf is a source of [microplastics pollution](#) and [rubber pollution](#) in [air](#), [fresh-water](#), [sea](#) and [soil](#) environments.<sup>[73][74][75][76][77][78][64]</sup><sup>[[excessive citations](#)]</sup> In Norway, Sweden, and at least some other places, the rubber granulate from artificial turf infill constitutes the second largest source of microplastics in the environment after the [tire](#) and [road wear](#) particles that make up a large portion of the fine [road debris](#).<sup>[79][80][81]</sup> As early as 2007, Environment and Human Health, Inc., a lobby-group, proposed a moratorium on the use of ground-up rubber tires in fields and playgrounds based on health concerns;<sup>[[82](#)]</sup> in September 2022, the [European Commission](#) made a draft proposal to restrict the use of microplastic granules as infill in sports fields.<sup>[83]</sup>

What is less clear is how likely this pollution is in practice to harm humans or other organisms and whether these environmental costs outweigh the benefits of artificial turf, with many scientific papers and government agencies (such as the [United States Environmental Protection Agency](#)) calling for more research.<sup>[2]</sup> A 2018 study published in [Water, Air, & Soil Pollution](#) analyzed the chemicals found in samples of tire crumbs, some used to install school athletic fields, and identified 92 chemicals only about half of which had ever been studied for their health effects and some of which are known to be carcinogenic or irritants. It stated "caution would argue against use of these materials where human exposure is likely, and this is especially true for playgrounds and athletic playing fields where young people may be affected".<sup>[84]</sup> Conversely, a 2017 study in *Sports Medicine* argued that "regular physical activity during adolescence and early adulthood helps prevent cancer later in life. Restricting the use or availability of all-weather year-round synthetic fields and thereby potentially reducing exercise could, in the long run, actually increase cancer incidence, as well as cardiovascular disease and other chronic illnesses."<sup>[85]</sup>

The possibility that carcinogenic substances in artificial turf could increase risks of human cancer (the [artificial turf–cancer hypothesis](#)) gained a particularly high profile in the first decades of the twenty-first century and attracted extensive study, with

scientific reports around 2020 finding cancer-risks in modern artificial turf negligible.[86][87][88][89] But concerns have extended to other human-health risks, such as **endocrine disruption** that might affect early puberty, obesity, and children's attention spans.[90][91][92][93] Potential harm to fish[75] and earthworm[94] populations has also been shown.

A study for the **New Jersey Department of Environmental Protection** analyzed lead and other metals in dust kicked into the air by physical activity on five artificial turf fields. The results suggest that even low levels of activity on the field can cause particulate matter containing these chemicals to get into the air where it can be inhaled and be harmful. The authors state that since no level of lead exposure is considered safe for children, "only a comprehensive mandated testing of fields can provide assurance that no health hazard on these fields exists from lead or other metals used in their construction and maintenance." [95]

## Kinesiological health risks

[edit]

A number of health and safety concerns have been raised about artificial turf.[2] Friction between skin and older generations of artificial turf can cause abrasions and/or burns to a much greater extent than natural grass.[96] Artificial turf tends to retain heat from the sun and can be much hotter than natural grass with prolonged exposure to the sun.[97]

There is some evidence that periodic disinfection of artificial turf is required as pathogens are not broken down by natural processes in the same manner as natural grass. Despite this, a 2006 study suggests certain microbial life is less active in artificial turf.[96]

There is evidence showing higher rates of player injury on artificial turf. By November 1971, the injury toll on first-generation artificial turf had reached a threshold that resulted in **congressional** hearings by the **House** subcommittee on commerce and finance.[98][99][100] In a study performed by the National Football League Injury and Safety Panel, published in the October 2012 issue of the *American Journal of Sports*

**Medicine**, Elliott B. Hershman et al. reviewed injury data from NFL games played between 2000 and 2009, finding that "the injury rate of knee **sprains** as a whole was 22% higher on FieldTurf than on natural grass. While MCL sprains did not occur at a rate significantly higher than on grass, rates of ACL sprains were 67% higher on FieldTurf."**[101]** **Metatarsophalangeal joint** sprain, known as "**turf toe**" when the big toe is involved, is named from the injury being associated with playing sports on rigid surfaces such as artificial turf and is a fairly common injury among professional American football players. Artificial turf is a harder surface than grass and does not have much "give" when forces are placed on it.**[102]**

## See also

**[edit]**

- **International Association for Sports Surface Sciences**
- **List of college football stadiums with non-traditional field colors**
- **Poly-Turf**
- **The Flying Grass Carpet**

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**[edit]**

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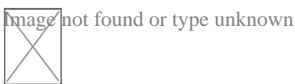


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