











## #FITNESS

What exercise burns the most calories?

Experts recommend these exercises as good alternatives to running for an effective calorie burn



Ask anyone what exercise burns the most calories and chances are they'll say 'running.' They're not wrong.

Per se, there are plenty of benefits to running, and one of the biggest is its ability to burn calories and fat. But there are so many other high calorie-burning exercise options out there. So if running's not for you, that's A OK!

But a reminder: There's little value in aesthetic goals, if that's what you have in mind on your hunt for calorie-burning exercises. You'll get so much more from mastering a new skill or, for example, lifting heavier through progressive overload and a well-structured workout split (either lower and upper-body, or a

push pull workout routine) when strength training.

Experts recommend these exercises as good alternatives to running for an effective calorie burn. The exact amount of calories you'll burn varies wildly according to several factors including your age, height, weight, gender, fitness level and more. So, we haven't specified exact numbers to expect (though, we have given a ballpark figure for a few), but these exercises are ranked according to average calorie burn.

## Rowing

**Rowing** uses the whole body, just like running, and works both your respiratory and cardiovascular systems. But rowing does much more for the arms and back than running does, and it's particularly good for anyone with joint issues in their lower body.

## Skipping

**Skipping** is great for cardio burn, and also helps to strengthen your arms and legs. It requires hand-eye coordination and balance, too, and can be more fun than running since it offers a new skill to learn. For those with bad knees, know that skipping is also far less impactful on the knee joints than running.

## Boxing

**Boxing** workouts work your strength and balance, while getting your heart pumping at the same time. Boxing is similar to running in that you need to focus on breathing techniques, but it requires more thought and attention than running as you need a strategy. It burns approximately twice as many calories as running, and if you have a history of lower body injuries, it's great for letting those heal since it focuses on the upper body.

## Cycling

**Cycling** offers very similar cardio benefits but with the added benefit of leg strength. That said, it doesn't put as much stress on your leg joints since it's low-impact. This could mean that you're able to cycle for faster or longer, resulting in a higher calorie burn than if you were to run for a shorter time. It's also handy for anyone short on time, since it can double up as a form of transport.

## Swimming

**Swimming** burns calories at a very similar rate as running, but it's entirely low-impact. So, if you have any pre-existing injuries, it's a great way to get a full-body workout and strengthen all of your muscles. Switch up your strokes to work your body in different ways. To boot, this is also a great prenatal exercise option, for pregnant women, since it spreads out the additional weight of a baby bump, but always consult a professional before exercising when pregnant, especially if you're new to swimming.



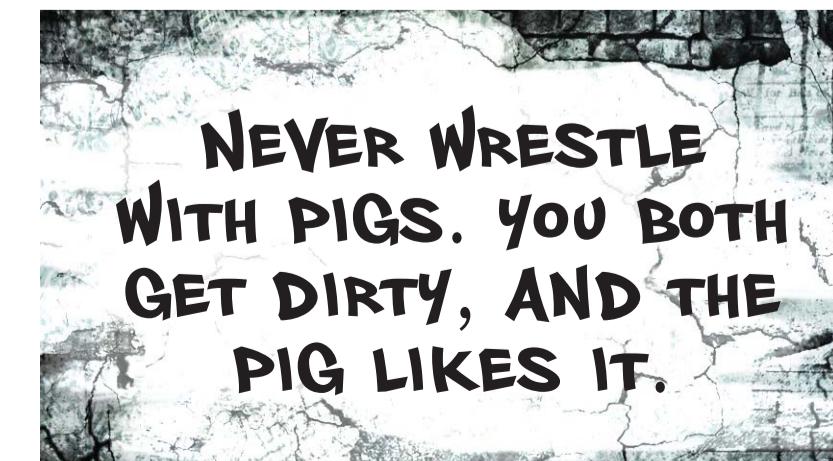
Kamayani Sharma

"...AT LONG LAST THE GREAT MOMENT OF DEVELOPMENT ARRIVES AND THE PLATE DROPS INTO THE SOLUTION, AS WE SIT IN THE DIM RED LIGHT OF THE DARK-ROOM... YES: A BEAUTIFUL NEGATIVE OF BAMBOOS ARCHING OVER WHERE THE TIGER SHOULD BE, BUT ALAS, NO TIGER!...BUT WAIT A MOMENT. SURELY THAT'S A TIGER'S FACE ON THE VERY EDGE OF THE NEGATIVE?...HE HAS SEIZED THE HIND-QUARTERS FROM BEHIND AND THERE IS HIS GREAT FACE, PARTLY OUT OF FOCUS, AND JUST ON THE EDGE OF THE PICTURE."



Ayush Baheti / Wikimedia Commons [Creative Commons Attribution-Share Alike 4.0 International license].

## THE WALL



# How exactly does India count its tigers?

In India, the use of camera traps to estimate populations was pioneered in the 1990s by Ullas Karanth, who relied on the classical *Capture-Recapture model* to calculate the number of tigers in a given area. Qureshi continued, "With the establishment of the National Tiger Conservation Authority in the mid-2000s, that model has been replaced by *Spatially Explicit Capture-Recapture* based on maximum likelihood. It is the most robust method used worldwide." He takes a step back to offer an overview of camera trap technology's evolution through the census cycles. "When we started, we focused on identifying individual tigers through their stripes, then their ranging patterns, and now we can use camera traps to study non-patterned animals too." While acknowledging that the most precise method of tracking animals is *satellite telemetry*, Qureshi feels that a 2 square kilometre camera trap density does allow for significant success. "We want inference about a given area to be drawn across time scales/periods and this method allows us to do a 1:1 comparison across time periods."

## Image building

The latest iteration of what is colloquially termed the 'tiger census' used a camera-trap-based *Capture-Mark-Recapture approach* to calculate the abundance and density of India's national animal through sampling. The report provides an account of the methodology implemented over three phases. In the first two phases, trained frontline forest workers collected data using a mobile app called *MS-TIPIES* (regarding signs of carnivores and large herbivores, population of hooved animals, presence of humans, facts about vegetation and dung counts) and remotely sensed data provided information about habitat and human impact. In the third phase, the camera traps "were systematically distributed across the tiger-principle areas of 2,000 km² cells deployed at least one pair of cameras within each cell, spaced at least a kilometre apart. These cameras were installed after the cells had been reconned for the best locations to sight big cats and from sampling was then done concurredly across multiple cells, in blocks of at least 200 square kilometre. With this nested grid division in place, cameras usually operated at each location for 25 to 45 days, to obtain images of tigers."

At the end of the day, the data collected from these cameras is used for research purposes exist alongside troubling ways in which camera technologies in forested areas are used and misused by governments and affect human communities.

In India, the most high-profile application of camera traps is probably in the context of *national tiger estimation exercises*, undertaken under the aegis of the Ministry of Environment, Forests and Climate Change. These surveys are carried out with the aim of monitoring a keystone species endangered due to a number of factors like habitat loss to urbanisation and industrialization, prey depletion and a concerningly high rate of poaching, for example. Since the initiation of *Project Tiger* in 1973, the conservation of Indian tigers has received state support. But it was their local extinction at *Rajasthan's Sivalik Tiger Reserve* in 2004 that sent shockwaves across the country and the world, prompting the Indian government to establish the *National Tiger Conservation Authority*, a statutory body under the Environment Ministry. Since 2006, this agency has partnered with the Wildlife Institute of India and State Forest Departments to count India's tigers every four years, combining data from camera-trap-based surveys and sign surveys. The fourth *All India Tiger Estimation survey* in 2018 was cited in the Guinness Book of World Records as the 'largest camera trap wildlife survey ever'. The fifth one in 2022 was even more ambitious. The full report titled '*Status of Tigers: Co-predators and Prey in India*', released in late July claims that more than 32,800 cameras were placed at 175 sites for the exercise (compared to around 26,800 in 2018) across 19 states, generating 97,399 tiger photos and identifying 3,080 unique tiger individuals in the process.



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## Photo finish

Heat and motion sensors are relatively new additions to camera traps. Jhala's colleague at the Wildlife Institute of India, Qamar Qureshi, who has been a part of the Tiger census since its inception, talks through the various methods of tiger counting in independent India. "In the 1970s," said Qureshi, "Saroj Raj Chaudhary (then Forest Conservator for Orissa) devised the method of *pugmarks*. The pugmarks would be traced on a glass plate and then transferred onto butter paper or cast into plaster. This was a method ripe for human error and not scientifically sound."

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Once the images have been snapped and stored in the camera's memory card, the frequency of collection varies, depending on the accessibility of the site, the purpose of the data and the capacity of the card. In case, the location has vehicular access, collection could take place within a day or two, but pedestrail access takes longer. The forest officer added, "In some cases, such as an animal conflict or an injury requiring medical intervention, we might need continuous photos which deliver daily captures, but the regular cycle is 15-30 days." The frontline staff then dispatches the collected images through a chain that goes from the Range Office to the Division Office, then the State-level Coordination Committee, before finally arriving at the Wildlife Institute of India for analysis by its scientists, and storage in a National Repository of camera trap photographs of Tigers and Leopards under the direct control of National Tiger Conservation Authority.

Scientists from the Tiger Cell at the Wildlife Institute of India are repositories of insights into the technical aspects of the camera traps' operation, the processing of the images and implications of the

(CaTRAT). CaTRAT stamps locations with GPS locations with other technologies of surveillance such as CCTVs and drones (now flying in restricted areas). Noting that "this is not a problem of camera traps alone," it is, however, a problem. Conservation geographer/sociologist Trishant Simla delivered a talk in 2021, based on his dissertation, '*Negotiating the Panoptic Gaze: People, Power and Conservation Surveillance in the Corbett Tiger Reserve, India*' in which he critiqued conservation surveillance technologies including camera traps. His ethnography-based research at Corbett revealed how camera traps extended patriarchy into women's spaces in the forest, entrenched caste power through scopic violence and criminalised scheduled tribes, and indigenous communities by weaponising the categories encompassing illegal wildlife activities against them. The ensemble of drones, camera traps and electronic eyes constituting '*conservation surveillance*'. When used without ethical safeguards and with complete impunity by the state, can lead to control in the most repressive ways.'

Given, as Simla found, that images of humans engaged in perfectly legal activities can be captured and circulated, what are camera traps' implications for privacy? Bishat said that the Wildlife Institute of India receives images of tourists, guards, researchers and villagers, used "to assess relative abundance index of tourists and (the) presence of humans." The data is stored separately in hard drives in the central repository, sans time limits and privacy policies." She claimed, "It is," she said, "the property of the National Tiger Conservation Authority and State Forest Departments. They decide whom to share it with." The National Tiger Conservation Authority did not respond to a request for comment.

As scientific instruments, camera traps provide crucial data and information about animal populations, behaviour and forest habitats. At the same time, the form's ancestral links to colonial regimes of hunting and policing and contemporary links to what has been termed the "militarization of conservation" cannot be dismissed. Karanth did acknowledge the

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## BABY BLUES



Rick Kirkman & Jerry Scott

## ZITS

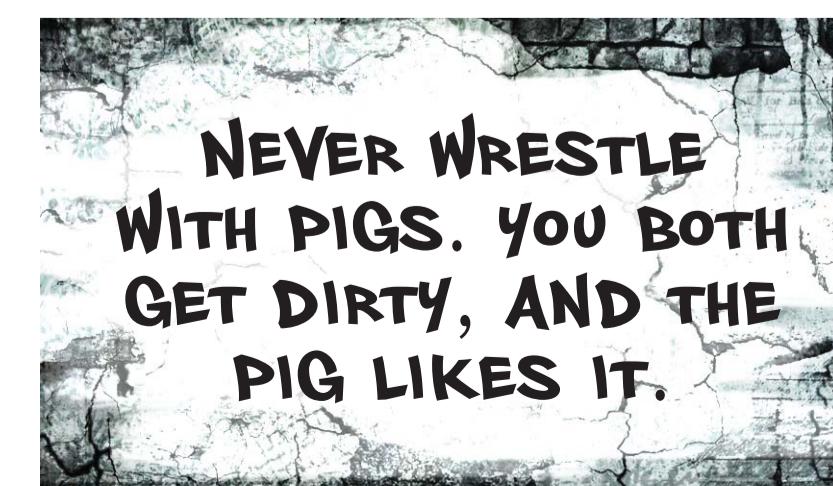


By Jerry Scott & Jim Borgman



## Husband Appreciation Day

Every day they are out there, taking care of and helping out their families in a million different ways, both large and small. Things have changed over the years and a husband's role has changed right along with it. Men take more responsibility for the household and children than in any previous generation! What hasn't changed is the appreciation that these amazing husbands deserve for all their tireless efforts. Husbands work hard and they deserve to be appreciated. *Husband Appreciation Day* reminds everyone to take a little extra time each year, to celebrate these wonderful men and everything they do as 'husbands.'



# बीकानेर के दृश्या गांव में मूलभूत सुविधाओं के अभाव में लोगों ने मतदान में रुचि नहीं दिखाई

बीकानेर जिले में शहरी व ग्रामीण क्षेत्रों में औसतन 40 से 55 प्रतिशत मतदान के अभाव प्रशासन की सजगता, चुनाव इयरी में लोगों की उम्मीदों के अन्य सामान तथा घटना में प्रयुक्त वाहन व शुरुहोंने में संपन्न हुआ गोपाल के बाहरी में पानी एकत्र होने, दृश्या गांव में शुरुहोंने में लोगों के अधार के अभाव में कई लोगों ने मतदान में अस्वीकृति दिखाई।

सुबह सात बजे से ही मतदान केन्द्रों के कार्मिक, शुरुहोंने में संपन्न हुआ गोपाल के बाहरी में पानी एकत्र होने, दृश्या गांव में शुरुहोंने में लोगों के अधार के अभाव में कई लोगों ने मतदान केन्द्र पर जन आधार लेकर







