THE FIRE LINE

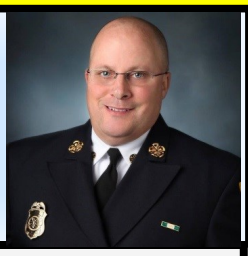
Fond du Lac Fire/Rescue Monthly Newsletter

July, 2019 Edition

FIRE LINE - DO NOT CROSS FIRE LINE - DO NOT CROSS

FROM THE BALCONY

A message from Chief Peter O'Leary



A Response Beyond Measure

I have experienced many proud moments when our members have performed in a manner which exemplifies excellence. Over the last week, I have had several instances where I stood back and watched with pride.

On May 15, 2019 at just after 7:00 p.m. I received a phone call from Madison Fire Chief Steve Davis telling me the horrific news that an Appleton Firefighter (later learned to be Mitchell Lundgaard) was fatally shot and killed. Chief Davis asked if I was available to immediately travel up to Appleton to support Appleton Chief Jeremy Hansen and the department.

Late into the night, decisions needed to be made on how to honor FF Lundgaard on his transport to Milwaukee. I immediately offered up one of our ambulances and personnel to meet that need. I knew without any doubt our members would step up and make the trek up to Appleton and then on to the Medical Examiner's Office in Milwaukee. As you might expect it took some coordination and cooperation behind the scenes, none of which would have been possible without our members stepping up; what an honorable thing for our agency.

As the motorcade began heading south on Interstate 41, well into the predawn hours, overpasses began to light up with red and blue lights from law enforcement and fire vehicles. I was proud to see our crews had already decided to get up and cover as many of our overpasses as they could; another proud moment.

The very next day, Green Bay Metro members transported FF Lundgaard back to Appleton and every single overpass in our county was covered by on and off-duty personnel. Our personnel again honored the life of a fallen brother and it showed the level of love and respect for a brother most of us didn't even know.

Over the weekend there was a great deal of coordination by many of our personnel to make sure the visitation and funeral services for FF Lundgaard were done with a great deal of care and compassion and respect. We were quick to offer up a staffed engine company to help with responses in Appleton during the visitation and funeral. When planning called for an ALS ambulance inside the church during the funeral, Fond du Lac Fire Rescue answered the call again. Add Lt. Roberts as a bagpiper, honor guard, and off-duty uniformed personnel who attended the ceremony and you all stepped up. Not everyone could be there, but the spirt of FDLFR was there!

Assistant Chief Gerritson and I were assigned roles to help manage the day of the funeral. I had the opportunity to meet with many citizens throughout the detail assignment as I assumed the role of PIO and assistant to Madison Fire Chief Davis. The residents took notice of all the agencies who helped their firefighters when they were down and in need. Inside the firehouses we had brothers and sisters from several agencies banded together for a day, but I could easily tell the bond was much deeper. The mood was full of sorrow as firefighters from other agencies tried to sort things out. We talked until we couldn't. It was a safe place to grieve with our own, about one of our own. The firehouse is a special place and for those gathered inside and stood in as the protectors of the City of Appleton surely felt it. We had enormous shoes to fill that day, but the Wisconsin fire service was up to the task. It's a day I won't ever forget and a crisis response beyond measure.

Until Next Month, Stay Safe And Be Well.

INSIDE THIS ISSUE:

UPCOMING EVENTS

July 4th
Fireworks at Dusk - Lakeside Park

July 17-21
Fond du Lac County Fair

July 22 - 28
EAA AirVenture Oshkosh

FOND DU LAC FIRE RESCUE OPERATIONS

By: Assistant Chief Erick Gerritson

How to Build Self-Motivated Firefighters

All organizations will falter and ultimately fail if the only motivators are punishment and reward. There are two essential ways that people can be motivated: extrinsically and intrinsically. The former type of motivation depends on external factors: rewards and punishments. The latter type of motivation comes from within and results from a personal commitment to the desired goal.

One type of motivation is not inherently better or more effective than another in any circumstance. We are all motivated in both ways. Let's face it: we all have to make a living and pay for essentials like food and shelter. Extrinsic motivators such as money, benefits, rewards and accolades are things that all of us value. And we all seek to avoid punishment and negative feedback.

But a healthy organization cannot run on external motivation alone. The limitations to the effectiveness of extrinsic motivation are significant.

First, extrinsic motivation tends to be an escalating scenario. Over time, people need more and more external feedback (either positive or negative) to achieve the same result.

Second, if people are strictly motivated by external factors, they quickly start gaming the system to their own advantage. Rather than focusing on the common mission, the goal is to get as much as one can for oneself individually while avoiding negative outcomes.

Third, running an organization based only on extrinsic motivation is exhausting. It requires supervisors to personally be aware of every single thing that happens so they can personally apply either rewards or punishments for that behavior. This is a recipe for crippling micromanagement.

3 CONDITIONS FOR INTRINSIC MOTIVATION

In the long run, individuals and organizations function better when intrinsic motivation is the guiding principle. This type of motivation leads to a condition where people want to do something for reasons that transcend just tangible gain or loss.

What factors must be in place for intrinsic motivation to exist? According to researchers, three key conditions must exist for true intrinsic motivation to thrive.

First, members of an organization must have a sense of mastery in their work. This competence comes not only from training and experience, but also from a sense of personal confidence that allows people to take action when it is needed.

Second, people must have a sense of autonomy in what they do. They must feel that they are trusted members of the organization. They need to believe that supervisors and leaders will not second-guess them or needlessly micromanage. They should be allowed to make decisions within their scope of authority without interference or delay.

Third, people must feel a sense of inclusion within their organizations. For positive intrinsic motivation to be present, members must feel that they are an important part of their organizations, and valued and recognized as such.

All of these factors need to exist within a wider scope of a sense of shared mission. Intrinsic motivation at its best attaches to a sense of common purpose beyond just individual achievement.

So what does this mean in a practical sense?

FOND DU LAC FIRE RESCUE OPERATIONS

By: Assistant Chief Erick Gerritson

How to Build Self-Motivated Firefighters, continued

So what does this mean in a practical sense?

HOW TO DO IT

It means that supervisors need to support and trust those who work for them. They need to provide those people with opportunities for professional and personal development, such as high-quality training, attendance at professional conferences, support for continuing education and participation in work groups.

Then leaders must create an environment where all members have ample opportunities to use the knowledge and skills they have attained. They must trust their company officers to make decisions and those officers must similarly trust their firefighters without micromanaging and second-guessing them.

If you tell a fire officer to design a fire education program for a school, let him design it. If you tell a firefighter to perform maintenance on a saw, let her do it.

Assuming these people have been well trained and encouraged to perform these tasks, reward them with the trust that builds intrinsic motivation. In this type of positive environment, soon you won't have to give specific orders — people will be looking for ways to contribute and gladly accepting personal responsibility within their roles.

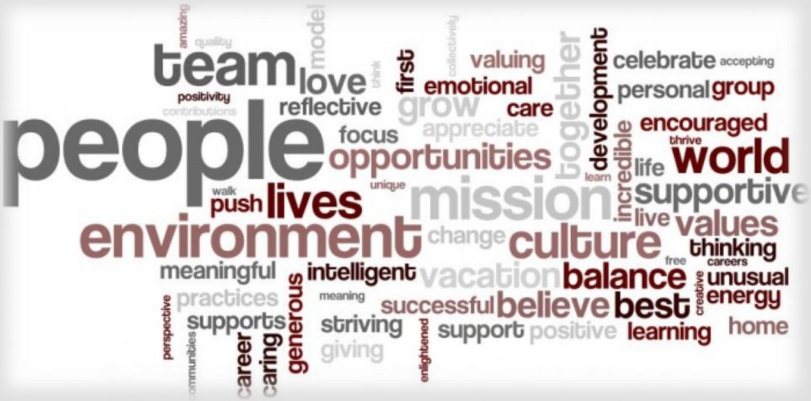
Finally, leaders must always be conscious that their actions speak louder than any words. They must demonstrate their personal commitment to the mission of service and safety through every action. They must actively practice inclusion among all members, not just the ones they like or feel more comfortable with.

Extrinsic motivation will never disappear as an incentive in our lives, nor should it. There are times when rewards and punishments are the most effective way to move people and get things done.

But in the long run, all organizations will falter and ultimately fail if the only motivators are extrinsic. To build engagement, commitment, and long-term success, look toward creating a workplace culture that fosters intrinsic motivation.

Article from Linda Willing of Fire Rescue 1

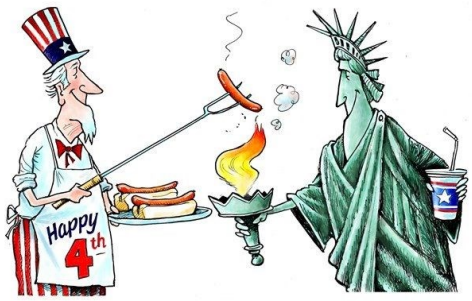
Until next month…Be Safe!!



OPERATIONS BY THE NUMBERS

MAY, 2019	THIS MONTH		YEAR–TO–DATE	
PREVENTION	**Last Year**	**This Year**	**Last Year**	**This Year**
Total Inspections	249	242	1354	1373
Total Defects	192	201	1979	790
SUPPRESSION				
Alarms Involving Fire	7	8	56	43
Fire Mutual Aid Given	2	0	8	6
Fire Mutual Aid Received	0	0	1	1
Service/Good Intent Calls	52	36	225	206
False Alarms & False Calls	27	35	121	165
Other Calls	12	20	52	74
Total Fire Alarms & Calls	98	99	454	488
EMS				
Total Ambulance Calls	502	520	2429	2584
Total Fire & Ems Responses	600	619	2883	3072
Fire Property Loss	$11,610.00	$134,500.00	$113,415.00	$303,638.00
Fire Contents Loss	$0.00	$16,000.00	$72,912.00	$72,601.00
Engine Assisted EMS Calls	214	242	1037	1121

John Rolfe
Mitch Petersen
Taylor Huenink
Sam Tennessen
Connor Knaus
Joe Goldapske
Lori Muentner
Don Salvaggio



Enjoy your 4th of July Celebration!

like us on facebook

at City of Fond du Lac Fire/Rescue

follow us on twitter

at fdlfire

The Code Summary

By: Todd Janquart
Assistant Chief of EMS

Pediatric patient ABCs: 7 tips for EMTs and Paramedics

Follow these steps to facilitate a successful outcome for dealing with emergencies involving kids

Sick or injured pediatric patients are notorious for showing vague changes in their mental status and vital signs, only to suddenly deteriorate and become critical.

"With kids, you need to start at death and work backwards," my paramedic school teacher taught. "If you're not two steps ahead, you're eight steps behind."

When you're called to help a pediatric patient whose life hangs in a critical balance between compensated and decompensated, here are seven ways to help save a pediatric patient.

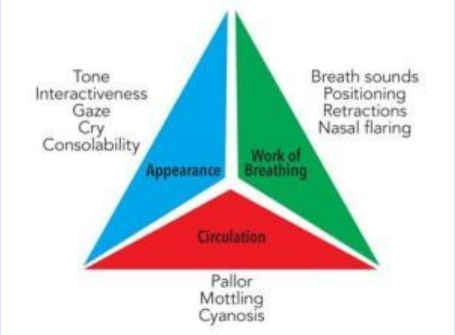
1. Acknowledge anatomical differences

You should avoid thinking of pediatric patients as little adults and instead understand their anatomical differences. For example, a child's head is larger in proportion to their body than an adult, which makes them more susceptible to trauma, especially after a fall. Children also have less blood and are, therefore, in greater danger of developing shock or bleeding to death from a wound.

Children have larger tongues and smaller airways with more soft tissue, making them more susceptible to foreign body and airway obstructions. The temperature control mechanism on pediatric patients is also unstable and they dehydrate easier. The first sign of shock is often a rapid heart rate and irritability, a drop in blood pressure is a late, ominous sign, and cardiac arrest is usually secondary to respiratory failure causing respiratory arrest.

2. Use the pediatric assessment triangle

You should be able to form your general impression of the child from the door and determine if the child is sick or not sick. Before you approach the patient, take a moment to look at their ABCs — appearance, breathing and circulation — from across the room.



Is the child alert, agitated, sleepy or unresponsive in regards to their appearance?

Is their airway open?

How is their work of breathing?

Do you hear any sounds from them breathing?

What is their respiratory rate?

Do you see an accessory muscle use?

What is the skin color and condition?

This set of visual vital signs should give immediate clues about the need for rapid treatment and transport to the hospital.

3. Attack the chief complaint

Since pediatric patients often can't vocalize their chief complaint — or give a detailed history of their present illness or injury — don't fall into the trap of walking into the room and delaying your primary assessment to get the full story from mom or dad. If you obtain OPQRST and SAMPLE histories first, precious time can pass before you even begin to assess the patient.

Instead, walk into the room, quickly determine the chief complaint and attack it by immediately performing an assessment of the child's airway, breathing, circulation and treating any life threats. Once the child is stable, move on to the secondary assessment to find out what happened, the child's medical history and vital signs.

4. Pay attention to the parents

Many parents seem to have an intuitive sense about their child's health. When a mom or dad says a vague phrase like, "My baby just isn't acting right," or "Something's very wrong with my child," your index of suspicion should raise and it's time to immediately find out exactly what the parent is noticing.

The Code Summary

By: Todd Janquart
Assistant Chief of EMS

Pediatric patient ABCs: 7 tips for EMTs and Paramedics, continued…

Conversely, I've also run numerous calls for a pediatric patient who "overdosed" or who is "altered," only to find the child is perfectly fine and the mother or father is drunk or on drugs. In these sad cases, the parents were so altered they thought their babies had stopped breathing or swallowed the pills, so we immediately called the police and child protective services to look out for the kids.

When you run a pediatric call, always keep your eyes open for neglect or abuse, such as bruises in multiple stages of healing or burns that present in the pattern of a splash or cigarette. It is up to you to be the child's advocate. We don't assume it is child abuse, but we assume it could be.

5. Make your job easier

Like many emergency departments — or pilots preparing for a departure or dealing with an in-flight emergency — I am a big fan of using checklists and reference charts to deal with an emergency.

The vital signs for pediatric patients change from 0-6 months, 6-12 months, 1-3 years, 3-5 years, 6-10 years and from 11-14 years. Trying to remember all the correct numbers for an age-appropriate heart rate, respiratory rate and blood pressure on a stressful call is simply too much.

Instead, keep a pediatric vital sign reference card in your pocket, clipboard or smartphone, and use the Broselow Pediatric Emergency Tape which lists correct vital signs, drug dosages and equipment sizes.

When you use these resources on-scene, you are less likely to make critical errors and you present to the parents as an EMT or paramedic that is diligent, professional and methodical.

6. Know childhood development by age

On a pediatric emergency, we can't always get a good history from the patient or parent but, by knowing the characteristics and behaviors of childhood development by age, you can figure out what constitutes an altered patient, what the chief complaint might be and how to best handle it.

Infants (0-12 months) generally respond to the voice or face of their parents, like to be held by caregivers and crying can indicate pain, discomfort or hunger.

Toddlers (1-3 years) are curious and, therefore, more apt to have an ingestion emergency or foreign body airway obstruction. Toddlers fear separation from their parents, so giving them a stuffed animal and allowing them to sit on their parents' lap might help build trust.

Preschoolers (3-5 years) can talk with simple words, but often can't understand what's happening and are scared by the sight of blood, so it's important to bandage even the simplest cuts and give constant reassurance.

School-aged kids (6-12 years) can generally answer questions and follow the guidance of EMS providers but have very vivid imaginations, especially about death, and might need constant reminders that they'll be okay.

Adolescents (13-18 years) can provide accurate information but fear permanent scarring with trauma, feel modesty is very important to them, and can get caught up in the hysteria of a 911 call, so it's important to be well versed in a variety of calming measures.

7. Competence breeds confidence

Most EMS providers don't run many pediatric emergency calls so it's imperative to keep your skills and knowledge base up by running scenarios with your agency, reading articles and taking classes such as Pediatric Advanced Life Support and Emergency Pediatric Care.

Then, when you respond to a pediatric emergency, you'll find yourself better prepared to deal with an emergency. Competence breeds confidence and confidence breeds competence.

Article from May 6, 2019 online edition of EMS1.com

Well trained people are the best defense against fire.

By: James Knowles III
Assistant Chief Training/Safety

Introducing the Tactical 360 (Part 2 of 3)

From a larger perspective an Incident Commander needs to be able to view two sides of the incident. But an Incident Commander using a TIC must be aware that at large distances temperatures will not be accurate, but the thermal signatures will be great indicators or clues for their decision making. We must be aware of the optimal range of our TIC as they vary. Most TIC's have an optimal range of 8-20 feet for accurate resolution and the distance to spot ratio temperature measurements.

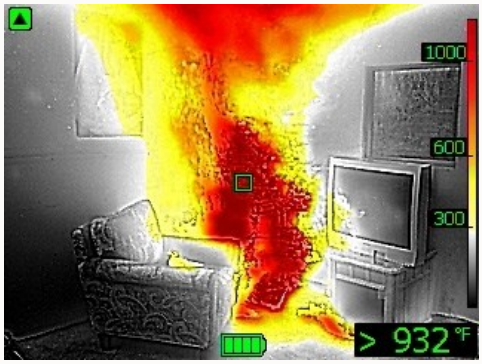
With a Thermal Imaging Camera, they can see thermal signatures on the structure such as increased heat on the exterior walls of the fire room, heat signatures on chimneys, and identify cold spots. Cold spots are not given the attention that they often deserve. They are important to note as an indicators of fire progression. For example, if the area adjacent to the fire is 200 degrees Fahrenheit upon arrival but after completing the Tactical 360 (approximately 1-2 minutes later) it is now 400 degrees; this is an indicator that the fire is developing towards that area. Remember the Delta T which tells us that an object that is heated will transfer heat towards an area of lesser temperature. Through the TIC, thermal signatures adjacent to darker cooler areas should be noted; as where there is air the fire will grow and can be drawn toward dependent upon ventilation points.

As Incident Commander conducts a Tactical 360 with a TIC they gain valuable insight on the fire's location and severity, cold spots, and they will be able to note flow paths and neutral planes from any ventilation opening (such as doors and windows).

With a TIC a firefighter/Incident Commander can look at the temperature of an opening exhausting smoke. It is important to note that a Thermal Imager reads surface temperatures and not the temperatures of the gases. Thus, an exhaust opening showing 1000 degrees at the top is the temperature of the immediate environment and not the gases. Those superheated gases may be much hotter. This would be thermal cue to the Incident Commander and should be cooled or extinguished to prevent flashover or thermal insult to the firefighters or occupants.

The thermal perspective can also observe thermal signatures in areas that may indicate signs of the loss of structural integrity. This can be seen by noting large heat signatures from a roof line in a light weight truss attic, while also noting joist sagging, and also thermal signatures from the basement area indicative of a well involved fire.

When viewing the incident during the Tactical 360, our eyes see the building, the fire, smoke, and critical fire ground factors. But, through a thermal imaging camera we can see:



• The true severity of the fire by noting high temperatures and size of thermal signatures.

• Identify the flow path by noting air intakes and exhausts

• Identify cold spots which is where the fire may be progressing to.

• We may see occupants or victims thermally.

We can now see the value of thermal data provided to the incident commander is priceless. A Tactical 360 allows the Incident Commander to view the incident optically and then compare what they see thermally. For example, during the Tactical 360, the Incident Commander may note heat signatures above the window frame of a tightly sealed energy efficient home indicating a fire in the room of origin whereas there would be no other cues and clues presented optically to them.

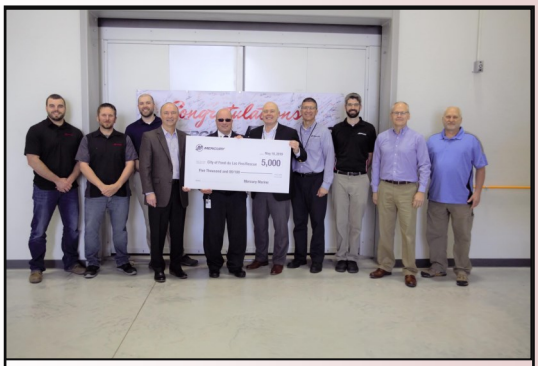
Next month, the final component to build the big tactical picture of the incident will tie the skills of utilizing our size-up perspective of the situation, what we can see thermally, and experiences with building in experiences with similar situations / what we know about the building.

Source: Starnes, A. (2019). Introducing the Tactical 360.
Retrieved from: http://www.blackhelmetbrotherhood.com/introducing-the-tactical-360/

News from the Station

The EMS Open House was held on Tuesday, May 21st with many community members, young and old, enjoying the different displays and demonstrations available for the event. Thanks to our community partners who helped make the event a great success!

FDL Fire/Rescue took part in the Memorial Day Parade which proceeded down Main Street. Captain Wamser enjoyed seeing the sidewalks full of children and families.



FDLFR congratulates Mercury Plant 12's Product Development Team for being recognized by Brunswick for their commitment to safety in the workplace. Thank you for your generous donation to FDLFR.

FIRE PREVENTION ....

That's what it's all about!

By: Troy Haase
Division Chief of Fire Prevention

Construction Professionals & Homeowners: Partners in Safety

During week four of Building Safety Month, the Alliance for Regulatory Coordination joins the International Code Council in promoting cooperation among homeowners and construction professionals. Whether you are going through a minor remodeling job or major construction, the code official wants your project to be a success. Building safety professionals play a major role in keeping the public safe. They can also help avoid potential problems that could put you at risk and cost you time and money.

Before you begin any work that involves construction, visit your local building department. They will explain the process, which may include getting a building permit, plan review and inspection. The process is designed to protect the home or building owner and the occupants. Code officials ensure that all buildings, including homes, businesses and places of public assembly are built to required building safety codes, which address structural stability, fire safety, exits, sanitation, electricity, energy efficiency, flood protection and more. These building safety professionals are responsible for protecting public health, safety and welfare through effective code enforcement.

What are Building Codes?

Building codes and regulations have protected the public for thousands of years. The earliest known code of law—the Code of Hammurabi, king of the Babylonian Empire, written circa 2200 B.C.—assessed severe penalties, including death, if a building was not constructed safely. Regulation of building construction in the United States dates back to the 1700s. In the late 1800s major cities began to adopt and enforce building codes in response to large fires in densely populated urban areas. The primary intent of early building codes was to reduce fire risk, but over time, their scope has broadened. Today, building codes are sets of regulations that address structural integrity, fire resistance, safe exits, lighting, ventilation, flood protection and construction materials. They specify the minimum requirements to safeguard the health, safety and general welfare of building occupants.

The International Codes (I-Codes), developed by the International Code Council, are a family of fifteen coordinated, modern building safety codes used in all 50 U.S. states and in many other countries that protect against disasters like fires, flood and other weather-related events and structural collapse. Public safety is not the only byproduct afforded by modern codes. Architects, engineers, contractors and others in the building community can take advantage of the latest technological advances incorporated in these codes to impart viable savings to the consumer.

The Codes Protect Your Investment

The biggest investment most people will ever make is when they buy a home. Homes represent security, a place where people will live, raise their families and share their lives with others. Whether you own or rent a home, following the building codes during construction or remodeling can help protect your health and safety as well as your investment.

FIRE PREVENTION ....

That's what it's all about!

By: Troy Haase
Division Chief of Fire Prevention

Construction Professionals & Homeowners: Partners in Safety, cont.

The building codes include research from experts that help ensure every phase of the construction process adheres to the latest building science and technology standards. In addition to helping make your home safe, the building codes can also help make your home more energy efficient, and conserve water and resources.

If your construction project does not comply with the codes adopted by your community, the value of your investment could be reduced. Property insurers may not cover work done without permits and inspections or your insurance premiums may become impractical to manage. If you decide to sell a home or building that has had modifications without a permit, you may be required to tear down the addition, leave it unoccupied or make costly repairs.
A property owner who can show that code requirements were strictly and consistently met—as demonstrated by a code official's carefully maintained records—has a strong ally if something happens to trigger a potentially destructive lawsuit. Your permit also allows the code official to protect the public by reducing the potential hazards of unsafe construction and ensuring public health, safety and welfare. By following code guidelines, the completed project will meet minimum standards of safety and will be less likely to cause injury to you, your family, your friends or future owners. Plus, you'll benefit from the best energy efficient construction techniques that will continue to pay you back during the life of your home.

Invest wisely in your home or remodeling project. It's a smart investment to build and remodel your home to the latest codes.

Source: Alliance For Regulatory Coordination, Robert DuPont,
"Construction Professionals and Homeowners: Partners in Safety", May 21, 2019

INTERNATIONAL CODE COUNCIL
BUILDING SAFETY 2019
No Code. No Confidence.

FIRE PREVENTION ....

That's what it's all about!

By: Troy Haase
Division Chief of Fire Prevention

Current Status of New Construction

- Fond du Lac County Garage at 1820 S. Hickory Street- Building is under construction.
- JD Byrider on N. Rolling Meadows Drive- Building is under construction.
- Fond du Lac Airport at 260 S. Rolling Meadows Drive- Buildings are under construction.
- VGM Storage Units at 450-456 West Arndt St.- Buildings are under construction.
- Mercury Marine Plant 17 at 545 W. Pioneer Road- Building is under construction.
- Mercury Marine Plant 98 Addition at 660 W. Pioneer Road- Building is under construction.
- Eilertson Electric at 920 Willow Lawn Road- Building is under construction.
- Fairfield Inn at 935 S. Rolling Meadows Drive- Building is under construction.
- River Hills Mixed Use Development on S. Main Street- Buildings 1, 2, 3, 4, 8 are complete and 5, 6 & 7 are under construction.

Smoking
& Home Fire Safety

The place where we feel safest — at home — is where most smoking-materials structure fires, deaths, and injuries occur. Smoking materials are the leading cause of fire deaths. Smoking material fires are preventable.

Smoking Safety

- If you smoke, use only fire-safe cigarettes.
- If you smoke, smoke outside. Most deaths result from fires that started in living rooms, family rooms and dens or in bedrooms.
- Keep cigarettes, lighters, matches, and other smoking materials up high out of the reach of children, in a locked cabinet.

Put It Out

- Use a deep, sturdy ashtray. Place it away from anything that can burn.
- Do not discard cigarettes in vegetation such as mulch, potted plants or landscaping, peat moss, dried grasses, leaves or other things that could ignite easily.
- Before you throw away butts and ashes, make sure they are out, and dousing in water or sand is the best way to do that.

Smoking and Medical Oxygen

Never smoke and never allow anyone to smoke where medical oxygen is used. Medical oxygen can cause materials to ignite more easily and make fires burn at a faster rate than normal. It can make an existing fire burn faster and hotter.

ELECTRONIC CIGARETTES

Fires have occurred while e-cigarettes were being used, the battery was being charged, or the device was being transported. Battery failures have led to small explosions. Never leave charging e-cigarettes unattended. E-cigarettes should be used with caution.

FACTS

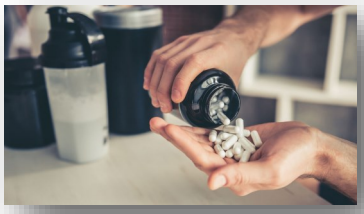
- The risk of dying in a home structure fire caused by smoking materials rises with age.
- One out of four fatal victims of smoking-material fires is not the smoker whose cigarette started the fire.

Your Source for SAFETY Information
NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169

PEER FITNESS TIPS

By: Peer Fitness Trainer
Jack Prall

Performance & Nutritional Supplements: Myths & Realities



A myth can be defined as an untrue explanation for a natural phenomenon. Unfortunately, numerous myths remain pervasive and well-engrained throughout the fitness industry, in particular as it pertains to various performance and nutritional supplements. In this article, we closely examine common supplements and present scientific evidence for whether the use of each is based on myth or reality.

Scope of Practice and Quality of Evidence
Strictly speaking, it is beyond the scope of practice for health and exercise professionals to provide specific nutrition recommendations to clients. On the other hand, evaluating the scientific merit of performance and nutritional supplements, and providing a sound educational resource falls within the realm of your work with clients, helping them to make informed decisions. The myths and realities surrounding nine common performance and nutritional supplements are presented here. How did we reach these conclusions? The final consensus (myth or reality) was based on whether there is sound theoretical rationale and supporting evidence for the efficacy and safety of the performance and/or nutritional supplement.

Are Performance and Nutritional Supplements Safe?
When it comes to performance and nutritional supplements, safety is a critical issue that must be addressed. When no side effects have been reported, in the scientific literature this has been interpreted to mean that the performance and/or nutritional supplement in question is safe for the length of time and dosages evaluated.

In a comprehensive review recently published in the International Society of Sports Nutrition, the topic of exercise and sports nutrition safety was highlighted (Kerksick et al., 2018). Specifically, supplements found to have sound theoretical rationale with the majority of available research in relevant populations using appropriate dosing regimens demonstrating its safety were categorized as having **Strong Evidence to Support Efficacy and Apparently Safe.** In this article, performance and/or nutritional supplements were given a “reality” designation only if they could be placed into this same category.

1. Creatine

It has been suggested that creatine monohydrate is the most effective supplement available to fitness enthusiasts for improving high-intensity exercise performance and increasing muscle mass (Kerksick et al., 2018). Indeed, there is a mountain of scientific literature demonstrating that creatine supplementation increases skeletal muscle mass during exercise training. Moreover, the long-term safety of creatine monohydrate has been well-established.

Creatine is an essential substrate for the phosphagen energy system and involved in adenosine triphosphate (ATP) regeneration during high-intensity exercise. As such, creatine supplementation has also been shown to result in an enhanced ability to match cellular ATP production and demand during high-intensity and repeated bouts of intense exercise.

It is worth noting that creatine use is allowed by the International Olympic Committee, National Collegiate Athletic Association (NCAA) and professional sports.

Creatine supplementation can increase creatine storage in skeletal muscle with a loading phase (20 to 25 grams/day for five to seven days) followed by a maintenance dose of 3 to 5 grams/day (Kerksick t al., 2018).

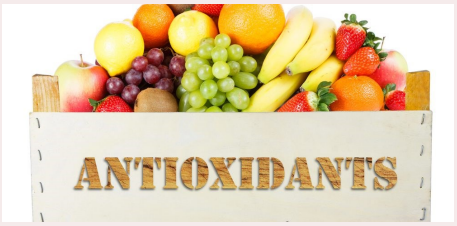
Final consensus: Reality

PEER FITNESS TIPS

By: Peer Fitness Trainer
Jack Prall

2. Chronic Use of Antioxidants

Conventional wisdom suggests that antioxidant supplementation may benefit exercise performance and enhance recovery by countering the increase in free radicals associated with exercise due to the long and well-established link between cell damage and free radicals. Now, more contemporary research is questioning the effectiveness of the antioxidant supplementation strategy altogether. In the past decade, in fact, a growing body of research suggests that superfluous (i.e., excessive) doses of antioxidant supplements consumed to retard free radical production during exercise training actually contributes to increased muscle fatigue and delayed recovery (Teixeira et al., 2009; Close et al., 2006). Moreover, it has also been reported that antioxidant supplementation with vitamin C hampers training-induced adaptations in endurance performance (Gomez-Cabrera et al., 2008).



Collectively, these findings strongly infer that antioxidant supplementation hampers favorable exercise training adaptations and interferes with the recovery process.

Final consensus: Myth

3. Caffeine

Caffeine is a natural stimulant found in coffee, tea and many nutritional supplements. There is robust scientific evidence demonstrating that caffeine ingestion serves as an effective ergogenic aid for both aerobic and anaerobic exercise performance. Caffeine ingested orally is quickly absorbed into the bloodstream and peaks within 30 to 60 minutes.

Caffeine mechanistically effects the central nervous system, primarily by antagonism of adenosine receptors, which results in enhanced mood, reduced perception of pain and increased attention. At the skeletal muscle level, caffeine ingestion promotes enhanced sodium/potassium pump activity, greater calcium release from the sarcoplasmic reticulum, and increased fat oxidation/glycogen sparing.

Overall, it has been recommended that a dosage of approximately 3 to 6 milligrams/kg of body weight ingested 30 to 60 minutes prior to exercise will increase work capacity and time to exhaustion and reduced perceived effort during endurance exercise (Naderi et al., 2016).

Final consensus: Reality

4. Carnitine

Carnitine is an ammonium compound produced endogenously by the liver and kidneys. It serves as a transporter of long-chain fatty acids into the mitochondria to be oxidized for energy production and thus plays a key role in the regulation of lipid metabolism. Accordingly, scientists and sport nutritionists alike have entertained the notion that supplementation could increase the bioavailability of carnitine and enhance overall capacity for lipid metabolism. This theoretical scenario could have both weight-loss and endurance-performance implications. In fact, Wall and colleagues (2011) demonstrated that 24 weeks of L-carnitine supplementation in men increased total muscle carnitine, enhanced lipid utilization (while sparing muscle glycogen) and elicited an 11% improvement in cycling work output.

Nevertheless, to date, the majority of research findings on carnitine supplementation reports it does not significantly alter total muscle carnitine content, enhance lipid metabolism, improve exercise performance and/or elicit weight loss in individuals who have overweight or obesity (Kerksick et al., 2018).

In summary, there is little to no evidence to support the efficacy of carnitine as an ergogenic supplement.

Final consensus: Myth

PEER FITNESS TIPS

By: Peer Fitness Trainer
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5. Post-exercise Carbohydrate Ingestion

This is a classic nutritional recommendation for recreational enthusiasts and athletes alike. After prolonged and exhaustive endurance-related exercise, the most important factor determining the timeframe to recovery is muscle glycogen replenishment (Ivy, 2004). It has been well established for quite some time that post-exercise carbohydrate (CHO) ingestion is critical to the synthesis of muscle glycogen.

More recently, both the precise timing of CHO ingestion and optimal CHO dosage have become better understood (Beelen et al., 2010). Post-exercise muscle glycogen replenishment occurs in two phases: a rapid rate that persists for 30 to 60 minutes after exercise cessation and a considerably reduced rate (60 to 90%) in the time period afterward. There is also evidence for a dose-response relationship between post-exercise dosage of CHO ingestion and the rate of muscle glycogen resynthesis. For example, it has been shown that consuming 1.2 grams per kilogram per hour (grams/kg/hour) of CHO increased muscle glycogen content 150% more than 0.8 grams/kg/hour of CHO (Beelen et al., 2010). However, ingestion of 1.6 grams/kg/hour of CHO provided no further increase in muscle glycogen content. Additionally, more frequent provision of this overall CHO dosage interspersed in smaller doses over a few hours is more effective at replenishing muscle glycogen compared to one or two large doses ingested less regularly.

In summary, to optimize muscle glycogen repletion after prolonged and exhaustive endurance-related exercise, it has been recommended to ingest 1.2 grams/kg/hour of CHO at 15- to 30-minute intervals immediately after exercise (Beelen et al., 2010).

Final consensus: Reality

6. Glutamine

Glutamine is an amino acid that is used in the biosynthesis of proteins. Common dietary sources of glutamine include beef, chicken, fish, dairy products, eggs, beans and vegetables such as carrots and spinach. It was originally suggested that glutamine supplementation may stimulate protein synthesis and thereby promote enhanced muscular performance. Indeed, research findings from Colker and colleagues (2000) assessed the effects of supplemental whey protein with or without added glutamine and branched-chain amino acids on body mass, body composition and exercise performance for a 10-week period. They observed that whey protein combined with glutamine and branched-chain amino acids, in addition to resistance exercise, elicited significant improvements in body composition and exercise performance. However, more recent research has found glutamine supplementation does not benefit muscular performance (Antonio et al., 2002; Candow et al., 2001).

In summary, there is insufficient scientific evidence to support glutamine supplementation for increases in lean body mass and/or muscular performance (Kerksick et al., 2018).

Final consensus: Myth

Conclusion

As a health and exercise professional, the aim is to provide you with evidence-based educational resources on the effectiveness of various performance and nutritional supplements. This will help make it possible to make informed decisions and fully understand how consuming these products will impact your health, performance and training.

by Lance C. Dalleck
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