

July
2020

Fire Line Newsletter



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From the Balcony: A Race to Find a Cure

I was sickened when I watched the video of the brutal unjustifiable murder of George Floyd while being subdued by a City of Minneapolis police officer. I cannot understand what might have been going through that officer's head (and the other officers standing by) while Mr. Floyd begged for his next breath. The conduct of that police officer was without question a deplorable crime. It's a crime, which America is fed up with and for good reason.

People from all walks of life have been protesting and begging to get their voices heard and I applaud those who protest peacefully and vocally demanding change. The anger and hostility protesters have is real and it can no longer be ignored because as history has shown us, the problems continue to resurface and people are losing faith in justice in America. We as Americans need to band together to find the cure to end racism.

What diminishes their collective voices are the looters, arsonists and vandals whose criminal intent have no place in a civilized society. Crimes of arson and looting destroy good hard working Americans livelihoods and their chance to earn a living. For some, looting and arson is their way to communicate but it comes at a great cost to all of us. There is no justification for arson, looting and destruction of property.

I have struggled to find the right words to express my support of our local police officers and many of my dear friends who are police officers. I cannot begin to imagine what it must be like to put on a police officer's uniform today with all the hostility that

surrounds their profession. I truly believe police officers are good humans and deserve to earn our respect. I also believe that the dozens of police officers I personally know would not have acted in such a reckless manner. I also believe the officers who I know wouldn't have stood guard while another officer committed such and egregious act.

I have found law enforcement officers to be some of the most noble and trusted people I have ever known. I cannot imagine life without them out in the streets keeping you and me safe. I hope and pray that society doesn't paint ALL police officers as criminals who take liberties with defenseless people. We can expect better examples of our peacekeepers without painting them all with a wide brush.

One thing I know for sure is that how I treat others matters and I have tried very hard as a parent to teach my children to accept others without considering the color of their skin. As a fire chief, I have tried to live a career in which I was fair to everyone no matter the color of their skin, where they lived, or what language they spoke. In no way do I think there isn't more I could do as a white man to better support my brothers and sisters of color, but I still have many years (God willing) to find a way to better impact those who have felt the anger we've witnessed in America.

Please be good to one another and remind each other why they matter.

*Until Next Month,
Be Safe and
Be Well
Fire Chief
Peter O'Leary*



FOND DU LAC FIRE RESCUE OPERATIONS

By: Assistant Chief
Erick Gerritson



New Computer Programs

Last month I introduced the new format for Policies and Standard Operating Procedures (SOPs) that we will be using through Lexipol. As explained, this new program and format should bring our policies and SOPs up-to-date, organized and easily assessable via a web-based platform.

With that said, we have also researched and purchased a few additional programs that should make life at the fire house easier and more efficient. The two programs that will soon be implemented are Crew Sense and Target Solutions. Both of the programs are under the same umbrella company, so there is some cross-over and similarities among them. Below I will give a brief description of each and how the programs will improve agency effectiveness.

Target Solutions, this program will be mainly managed by Assistant Chief Knowles, so I will let him explain the procedures for use at a future date, but I will give you a brief overview. Target Solutions is a training and record keeping program that will soon replace Kaplan and some aspects within Elite for training, public relations, vehicle and equipment checks and data recording. There are many pre-built training programs that

will satisfy our continuing education needs for our EMS licensure. This is much like how Kaplan was used, just in a different format and program. Along with EMS training, AC Knowles will be able to manage much of our monthly and annual fire training. Stay tuned for AC Knowles to roll out the details and to provide more information on this state-of-the-art software program.

The other program that we will be implementing is Crew Sense. This is a scheduling program that is very intuitive. Years ago when I was a Captain, I was not satisfied with how I am Responding was used for our daily staffing needs. The program works great for our emergency call-backs, but is very cumbersome for the way we use it on a day-to-day basis. Two years ago I was in a class at Fire Rescue International and started a general conversation with my tablemate before the educational session began. During the session, he received a text and then frantically pulled out his laptop started clicking away. During break he began to tell me that he needed to make some urgent staffing changes at his agency. We joked that no matter where

you are, "you can't get away from work." Then I began to inquire on what program he was using for the changes he was making. This was my first exposure to Crew Sense. This program is web-based and is fairly simple to operate. The ability to make staffing changes as easy as "click and drag" is so much more efficient and simple that real time scheduling will be realized. Additional features like the use for employee call-backs, our overtime record management and shift trades are all possible with this program. I have assigned Captain Maramonte to lead this venture with me for implementation and have also included Lori for some data entry. We do not have a roll-out date set as of now, as we are still learning many of the facets to the program, but we are all hoping this will be implemented soon.

I believe that everyone in the agency will really appreciate the easy-to-use programs that we are implementing and that these will make life a bit easier in the Fire House. I look forward to utilizing these new additions and I hope you will also.

***Until next month...
Stay Safe!!***

Operations by the Numbers

May, 2020	By Month		Year-To-Date	
	Last Year	This Year	Last Year	This Year
PREVENTION				
Total Inspections	242	73	1345	866
Total Defects	201	22	786	549
SUPPRESSION				
Alarms Involving Fire	8	13	41	53
Fire Mutual Aid Given	0	0	4	8
Fire Mutual Aid Received	0	0	0	0
Service/Good Intent Calls	37	61	208	239
False Alarms/False Calls	36	29	166	119
Other Calls	18	17	74	61
Total Fire Alarms & Calls	99	120	489	472
EMS				
Total Ambulance Calls	520	518	2584	2431
Total Fire/EMS Responses	619	638	3073	2903
Fire Property Loss	\$134,500.00	\$109,100.00	\$303,638.00	\$335,100.00
Fire Contents Loss	\$16,000.00	\$58,600.00	\$72,601.00	\$168,751.00
Engine Assisted EMS Calls	242	221	1120	1030

Birthdays, Employment Milestones, Upcoming Events

UPCOMING EVENTS

July 1

*Dock Spiders
Home Opener*

July 15 - 19

*Fond du Lac
County Fair*

~ Happy July Birthday ~

**Don Salvaggio • Mitch Petersen • Joe Goldapske •
John Rolfe • Jon Hartzheim • Sam Tennessen •
Taylor Huenink • Nate Wilson • Lori Muentner •
Connor Knaus • Andrea Hoksbergen**

 like us on
facebook

 follow us on
twitter

**HAPPY BIRTHDAY
AMERICA!**

HAVE A SAFE & HAPPY HOLIDAY!



The Code Summary

By: Assistant Chief Todd Janquart

William B. Kouwenhoven: A Father of CPR

In 1947, a 14-year-old boy had to undergo surgery for a congenital condition called Pectus Excavatum, in which his chest bone had sunken into his chest. Claude Beck, MD, a prominent chest and heart surgeon, operated to repair the malformation. Just as Beck was closing the chest cavity at the end of the operation, the heart went into ventricular fibrillation while still under anesthesia.

Hurriedly, Beck reopened the chest and massaged the boy's heart for 45-minutes. While the treatment kept blood moving through the heart, the organ had not begun pumping on its own. Beck had only one desperate option remaining to save the boy.

Assistants wheeled a device the size of a refrigerator into the operating room. It was a ventricular defibrillator still in research and development. Quickly, Beck switched the experimental device on and applied the attached paddles directly onto the boy's naked heart. The surgeon placed an open electric shock to the heart. A moment later, the

heart stuttered back to life and began to beat normally. Three hours later, the boy was awake and answering questions. He went on to full recovery. It was the first successful defibrillation of a human heart.

Beck's defibrillator was the culmination of 20-years of research, trial, and error launched by one man: William Bennet Kouwenhoven. Kouwenhoven would lead advancements in the technology for another 25 years in his dogged pursuit of saving lives through the application of electricity to the heart. He wasn't even a medical doctor.

A Time of Change

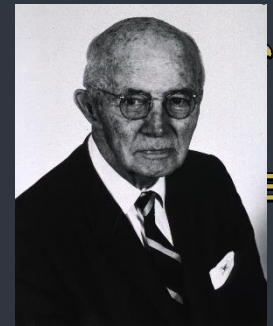
William Bennet Kouwenhoven was born on January 13, 1886, in Brooklyn, New York, a descendant of one of the earliest Dutch families to settle in New York. It was an exciting time for young Kouwenhoven. He grew up in a time of profound change in urban life in America. The discovery and introduction of electricity as a new power source had brought artificial lighting, motorized transportation, modern construction,

increased production of food and improvements in health care. For instance, the EKG had become available in New York hospitals in 1906.

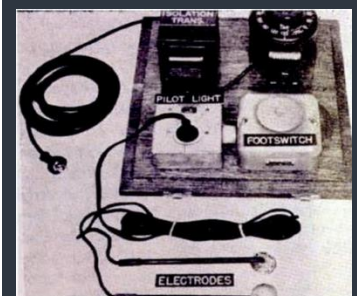
The spread of electricity throughout society and industry spurred Kouwenhoven to pursue the study of engineering at the Brooklyn Polytechnical Institute. He earned a Bachelor of Science in Engineering, then a Masters Degree in mechanical engineering at the school. He titled his thesis, *The Effect of Electricity on Medicine*. In 1913, he obtained his PhD in electrical engineering at the Karlsruhe Technische Hochschule in Germany.

A year later, Johns Hopkins University established an engineering curriculum. The school invited Kouwenhoven to become the first electrical engineer in their new engineering program. Five years later, the curriculum became its own department. The University named Kouwenhoven an associate professor of electrical engineering.

An Electrifying Problem



William B. Kouwenhoven
1886-1975



Closed Chest Defibrillator
1958



William B. Kouwenhoven: A Father of CPR, Continued...

By the early 1920s, Americans were clamoring for the remarkable advances made possible with electricity. Lighting, cooking, communication with telephones, and radio were completely changing life in the home. Careers as electrician and lineman — who strung the electrical wires between locations — flourished.

With the increasing workload, the number of linemen suffering incidental low-intensity shocks increased. The shocks occasionally caused sudden death from ventricular fibrillation. The issue concerned Consolidated Edison, the power company in New York City, which initiated a study of the effect of electricity on the human body.

One of the universities involved in the research was Johns Hopkins, where, in 1928, Kouwenhoven would embrace the project that would become his life's work.

A Dog's Life

The year 1933 presented a turning point in the understanding of electricity's effect on the heart. Researchers found through open-chest studies on dogs that an electrical shock could cause ventricular fibrillation.

Efforts to stop the arrhythmia with IV medications were unsuccessful. Frustrations with the lack of progress were running high among researchers.

During one laboratory session at which Kouwenhoven was present, a dog was shocked into lethal heart dysrhythmia while its chest was open. Kouwenhoven shouted, "Shock him again!" The dog's heart revived, and with it, the hope that medical professionals would one day be able to use electricity to revive human hearts in cardiac arrest. A prominent chest and heart surgeon named Claude Beck read about the success in a medical journal that year.

Beck and Alfred Wiggers, a physiologist, subsequently developed a defibrillator of their design. In the early 1940s, they tried twice to apply electric shock to human hearts without success. Their subjects were older patients with diseased hearts who had developed ventricular fibrillation during their operations. Beck would go on in 1947 to save the life of the boy whose heart would stop during open-chest surgery.

Close to the Chest

In 1950, the Edison Electric Institute enlisted Kouwenhoven to lead a team to create a closed-chest

defibrillator. Kouwenhoven was 65 years old when he started the project.

In 1955, Paul Zoll, MD, a Boston cardiologist, would deliver the first successful closed-chest defibrillation to a human. Zoll had already developed an external heart pacer to manage certain arrhythmias to restore normal sinus rhythm. He applied his experience with heart pacers to the application of electrical current to stop fibrillation of the heart. He developed an external defibrillator after extensive lab experiments on animals. He successfully performed the first successful closed-chest defibrillation of a human in August 1955.

The Breath of Life

Kouwenhoven retired as the dean of electrical engineering at Johns Hopkins in 1954. He joined the Department of Surgery at the university under Alfred Blalock, MD, a renowned cardiac surgeon. The department provided Kouwenhoven with a lab to support the goal of delivering a portable defibrillator. One of the fruits of the research was the discovery of Cardiopulmonary Resuscitation (CPR).

Kouwenhoven's team included a young electrical

engineering graduate student, Guy Knickerbocker. Knickerbocker observed that the femoral artery pressure of dogs in the lab increased when he tightened a strap around the chests of dogs that researchers were going to shock to induce ventricular fibrillation. The team concluded that chest compression was able to cause a pulse wave in the arteries that could circulate blood in the dog.

The discovery provided a necessary piece of the puzzle of how to revive the heart through electricity when no defibrillator was immediately available.

Medical researchers had already learned that electrical defibrillation had to be applied to the heart immediately to be effective. For patients to survive, doctors had to apply the technique to hearts within 10 minutes of fibrillation. The brain and heart cease to function irreversibly in 10-to-12 minutes without oxygen. Oxygenation of the blood needs effective respiration.

Anesthesiologists had already proven that expired air carried sufficient oxygen to maintain respiration. They had established that mouth-to-mouth respiration was enough to sustain a person who was not breathing for a limited time. Kouwenhoven's

William B. Kouwenhoven: A Father of CPR, Continued...



team hypothesized that mouth-to-mouth respiration combined with the ability to maintain circulation by external cardiac massage would keep patients alive just long enough to transport them to a defibrillator or to bring a defibrillator to the patient.

The Johns Hopkins team used anesthetized dogs with induced ventricular fibrillation to prove the hypothesis. In 1957, they found that the fibrillated dogs could live for 30 minutes through chest compression and then electrical defibrillation. CPR had been developed under the direction of an electrical engineer!

In the same year, Kouwenhoven rolled out a mobile defibrillator. Installed on a cart, the staff could move the 270-pound machine throughout the hospital to use the device. In 1957, Johns Hopkins had performed two successful defibrillations. In 1958, a resuscitation team at the university successfully revived 14 of 20 ventricular fibrillation cases. Kouwenhoven was 74 years old when he and members of his team went on a nationwide tour in 1960 to introduce this method to the medical profession.

By 1961, Kouwenhoven and

his team had managed the successful delivery of a 45-pound defibrillator that could fit in a small suitcase. In the same year, the Baltimore Fire Department began to develop a cardiac resuscitation program in the city based on the Kouwenhoven team's technique and technology.

The remarkable accomplishment of William B. Kouwenhoven, MD, is a tale of inspiration, serendipity, and relentless pursuit of a goal that has altered countless lives.

Further Recognition

Dr. Kouwenhoven was a member of the AIEE (American Institute of Electrical Engineers) and served as vice president from 1931 to 1933.

Already a Fellow of the Institute in 1934, he became a member of the Board of Directors from 1935 to 1939. In 1962 this organization awarded Dr. Kouwenhoven the Edison Medal for "his inspiring leadership in education, for his contributions in the fields of electrical insulation, electrical measurements, and electrical science applied to medicine."

He continued research at Johns Hopkins Medical School through the 1960s and in 1969 published a

review article, "The Development of the Defibrillator" in the *Annals of Internal Medicine*, Vol 71, No.3. At the medical school graduation that year he received the first honorary medical degree ever awarded by Johns Hopkins School of Medicine.

He also was awarded the Hektoen Gold Medal by the American Medical Association.

During his long tenure at Johns Hopkins, he held the position of dean of the School of Engineering from 1938 to 1954. After retiring as dean, he was appointed an emeritus professor of surgery under the approval of Alfred Blalock, the chief of the Surgery Department.

At the age of 87, he was awarded the Albert Lasker Award for Clinical Medical Research, America's most prestigious biomedical prize. The award cited his "ageless genius" and acknowledged his landmark contributions.

He died in 1975 at the age of 89. An obituary in the *New York Times* lauded him for "developing the basic cardiac treatment devices and procedures used worldwide."

Article from June 9, 2020 online edition of the Journal of Emergency Medical Services authored by Robert S. Clawson, MD.

Prejudice is a great time saver. You can form opinions without having to get the facts.

E.B. White

News from the Station

FDLFR would like to welcome our newest member, Firefighter/Paramedic Anthony Gonzales. Welcome Anthony!



My name is Anthony Gonzalez. I am originally from Appleton, WI and still currently live there. I went to FVTC where I obtained my Associates Degree in fire protection. I have been living in Madison for the past two years while going through paramedic school; however, I am very happy to be back in the Fox Valley area. I enjoy the outdoors, including camping and hiking with friends and family. I also enjoy watching/playing sports, and bow hunting when time allows. I am in a band named RINGS, we play at restaurants and private parties throughout the area playing mostly classic rock music. I just finished my first year at UW-Oshkosh starting the FERM program. I am looking to move to Fond du Lac in the near future. I am very excited to begin my career as a professional firefighter/paramedic and I look forward to serving the community of Fond du Lac.



June 5, 2020



June 16, 2020

Our public parking lot at station one is getting a much needed facelift which will create additional parking spaces and offer a more uniform traffic pattern. The excavating has been completed with curbing, sidewalk, and asphalt coming soon.



The new garage door at Station 2 has been installed. The doorframe had to be heightened to allow for the new Quint engine which will be arriving this fall. The four-paneled door will open horizontally instead of vertically to allow extra room for the new engine.

Well-trained people are the best defense against fire.

By: Assistant Chief of
Training/Safety
James Knowles III



Central Ave. Fire
5.21.2020



Details Matter: It's in the Attic!

Attic fires can be some of the most challenging fires to extinguish. These fires can be extremely dangerous because the true conditions are hidden in the attic space and firefighters may not be expecting the sudden change in conditions when an attic flashover occurs. Many times, during size-up, the smoke conditions and location will confirm an attic fire. The next questions that should come to mind are the following:

1. How did the fire get into the attic?
2. Can it safely be extinguished?
3. Where should the initial hoseline be placed?

It also needs to be understood that when opening the ceiling to access the attic, you're creating a ventilation opening. It must be done, but firefighters should put water into the attic space to cool it off immediately. Significant firefighter safety research was done on attic fires. This article shares the highlights.

UL-FSRI Research Study Purpose

The purpose of the study was to increase firefighter safety by providing the fire

service with scientific knowledge on the dynamics of attic and exterior fires and the influence of coordinated fire mitigation tactics from full-scale fire testing in realistic residential structures. Attic fires impact every town and city across the United States. It is estimated that 10,000 residential building attic fires are reported to U.S. fire departments each year. These fires cause an estimated 30 civilian deaths, 125 civilian injuries, and \$477 million in property loss. Some factors that contribute to these statistics follow.

- Attic fires commonly go unnoticed until smoke or flames are visible from the outside of the structure.
- A fire in the attic may involve insulation and wood structural members as well as a variety of stored belongings.
- Attic ventilation systems create an optimal fire growth and spread situation by supplying oxygen to the fire and exhausting hot gases.

Experiments included wall

experiments, eave experiments, full-scale attic fires, and knee wall and attic fire experiments. At the end of the experiments, all the data was analyzed, and the Technical Panel was compromised of fire service personnel from across the country. This analysis allowed the panel to design a list of tactical considerations. These considerations are not rules that must be followed. They are not tactics that UL indicates you only use at your next attic fire. They are considerations for use in your standard operating guidelines, in training, and on the fireground. The panel defined 12 tactical considerations, which follow.

Tactical Consideration # 1

Increased use of plastics in exterior walls will change what you find on arrival. Changes in residential wall construction methods are playing an important role in how exterior fires are initiated as well as how they spread and extend.

Exterior wall fires spread more rapidly. The evolution in building materials has led to an increased ignition potential from fires. These new materials also have much higher energy

Details Matter: It's in the Attic continued...



release rates. This combines to change the way fires grow and spread on the exterior of a structure.

Exterior fires can easily become structure fires prior to arrival. Fires adjacent to modern exterior wall construction have the potential to transition to structure fires within two minutes of ignition.

Exposure to adjacent structures occurs prior to arrival. The projection of the flames out of the eaves and the additional fuel load at the eave/soffit line combine to increase the radiant energy directed at any adjacent structures, increasing the exposure threat.

Tactical Consideration # 2

If the fire starts on the outside, start fighting it from the outside. Rapid water application to knock down the exterior fire is a critical part of any attempt to control not only the fire's spread to adjacent structures but also the fire's migration into the interior of an exposed building. If the source of the fire is not suppressed, it will continue to supply heat energy to the fire developing on the interior, worsening conditions on the inside and in many cases making it impossible for the interior crews to maintain or advance their positions

LODD Case Studies:

- Prince William County Department of

Fire and Rescue, LODD Report for Technician I Kyle Robert Wilson—NIOSH LODD 2007-12

- Four Career Fire Fighters Injured While Providing Interior Exposure Protection at a Row House Fire—District of Columbia—NIOSH LODD Report 2007-35

Tactical Consideration # 3

Learn to anticipate where and how an exterior fire will migrate to the interior. Exterior wall fires may easily spread to the interior at locations other than the eaves and soffits. Any penetrations such as air vents, electrical receptacles, plumbing penetrations to faucets and drains, and especially windows provide the opportunity for fire spread into the interior of the structure. Leaving the interior fire barrier in place until the exterior fire can be controlled will limit the extension into the structure.

Tactical Consideration # 4

Attic fires are commonly ventilation-limited fires. The openings provided for natural ventilation are not enough to maintain steady state burning and fuel-limited fire behavior. The size of the fire is limited by the available oxygen and will nearly always become ventilation-limited.

Accessing the attic:
Controlled openings created

between the neutral plane (such as through the ceiling below the attic space) will not cause immediate growth and can provide access for suppression.

Small vs. large hole: A small opening in the ceiling will supply some air to the attic fire, but without an outlet like open gables or a large hole in the roof, there is not a flow path through the attic enough to lead to rapid fire growth. There will be local mixing of fuel and air at the opening that will produce flaming, but this will only be able to exist at that opening and not throughout the attic because there is no increase in airflow throughout the attic. When several openings or a very large opening is made through the ceiling below, more mixing will occur, and the fire may begin to grow rapidly, overwhelming any natural or firefighter-made openings in the roof. This creates the potential for the fire to burn downward or for a pulse of hot, unburned gases that mix with air below and ignite.

Tactical Consideration # 5

Closely time or limit vertical ventilation until water is in the attic. In the absence of suppression, the positive effect of a roof opening is a very short-lived phenomenon. The accelerating fire will quickly overwhelm all openings and push back into the occupied space.

The fire dynamics changed



Details Matter: It's in the Attic continued...



significantly when a hole in the roof was created. In some of the experiments, a four-foot by four-foot hole was opened over the center of the attic. This simulated a vertical vent performed by the fire service, burn through of the sheathing by the fire, or failure of a skylight.

Once the hole was opened, the products of combustion exited efficiently, and a large volume of replacement air entered the attic through the eaves, gable vents, a hole in the ceiling, or combinations of all three. This affected the ventilation-limited fire, rapidly increasing the heat release rate.

Tactical Consideration # 6 Plastic ridge vents can affect size-up and fire dynamics. As the vents heat, the plastic melts and collapses on the opening at the peak, creating a very effective seal. Once the ridge vent seals, the eaves will act as both the source of air as well as the exhaust, and you may notice a pulsing of smoke out of the eaves.

Tactical Consideration # 7 Wetting sheathing with an eave attack slows attic fire growth. If crews wet the sheathing, either as part of an offensive fire attack or defensively to slow fire spread to uninvolved sections of the structure, the major flame spread mechanism in the attic is

eliminated until the moisture evaporates. Removing the soffit and flowing water along the eave line of these structures was the most effective way to gain the upper hand on a fire that was venting through the roof.

Tactical Consideration # 8 Attic construction affects hose stream penetration. The most effective water application takes into consideration the construction of the attic, using the natural channels created by the rafters or trusses to direct the water onto the vast majority of the surfaces.

Tactical Consideration # 9 Consider flowing up instead of down with a master stream. Consider using an aerial device or portable ladders and handlines to open the eaves and flow water into the attic. This approach could result in controlling the fire enough to permit firefighting crews to transition back inside the structure to complete searches, suppression, and overhaul.

Tactical Consideration # 10 Knee wall fire dynamics: During a structure fire, it is possible for fire to enter void spaces and surround crews conducting interior operations. Even though there is a delay between making the breach and the change in conditions, once initiated, the transition to untenable conditions in

operation occurs in seconds. Any penetration into the void space from the interior creates a flow path, allowing fire to spread into the interior and exposing crews. This may not happen immediately; therefore, it can occur behind the advancing crew, blocking their egress.

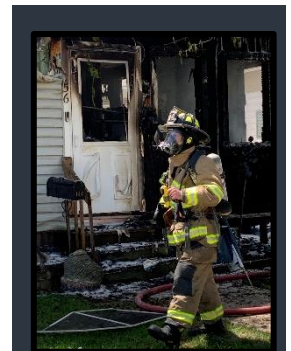
Tactical Consideration # 11 Apply water on a knee wall fire at the source and toward the direction of spread before committing to the attic. Applying water using the same path the fire took to enter the void space may be the most effective method at slowing fire growth. Water application to the knee wall will not be effective until the source below it is controlled with direct water application to the source.

Tactical Consideration # 12 Interior operations on knee walls: Tests have demonstrated that the most effective way to get a handle on knee wall fires is to control the source fire; cool the gases prior to making large breaches in the barrier; and then aggressively open the knee walls to complete extinguishment, focusing on wetting the underside of the roof decking. We've all heard that the success of the first hoseline will determine the outcome of the fire. Getting water onto the base of the fire as quickly as possible should be our goal even when it's in the attic.

Consider property conservation. Look at what is actually burning in the attic and get EFFECTIVE water onto what is burning.

Source: Grey, S. & Norwood, P. J. (2018). *Details matter: it's in the attic. Fire Rescue. (Issue 11 and Volume 13).*

Retrieved from: <https://firerescuemagazine.firefighternation.com/2018/12/07/details-matter-it-s-in-the-attic/>



FOND DU LAC
EST. 1848
FIRE / RESCUE

Current Status of New Construction

- Tavern on the Avenue at 725 Fond du Lac Ave. – Building is under construction.
- Moraine Park Technical College at 235 N. National Ave. – Building is under construction.
- Carew Concrete at 244 W. Pioneer Rd. – Building is under construction.
- Fairfield Inn at 925 S. Rolling Meadows Drive – Building is under construction.
- Ducharme cottages at 100-400 Ducharme Parkway – Building 100, 200, 300 are complete and 400 is under construction.
- River Hills Mixed Use Development on S. Main St. – Buildings 1, 2, 3, 4, 5, 6 & 8 are complete and 7 & 9 are under construction.
- Waters School at 495 Wabash – Building is under construction.
- Chegwin at 109 E. Merrill Ave. – Building is under construction.
- Theisen Middle School at 525 E. Pioneer Rd. – Building is under construction.
- McDonalds at 770 W Johnson – Building is under construction.



If roasting marshmallows, help young children. Never shake a roasting marshmallow. It can turn into a flying, flaming ball. A heated metal skewer can cause burns.



Fire Safety for Kids – Campfire Safety

There is nothing like enjoying the great outdoors with a campfire, gooey s'mores, and a night sky full of stars. But campfire mishaps can cause injuries. Here is a list of tips and things to talk about with children before being around a campfire.

Educate kids about the seriousness of a campfire.

No rough-housing, running, or playing around a campfire.

Create a do not cross line to be aware of the appropriate distance.

Adult supervision is required at all times especially for roasting marshmallows.

Do not throw things into the fire.

Walk behind chairs rather than in front of chairs to prevent tripping into the fire.

Stop, drop and roll if anything does catch on fire.

Fire Prevention

The Bureau Never Sleeps

By: Division Chief
Garth Schumacher



A Personal Experience Regarding the Dangers of Fireworks

As I write my article for the July edition of Fire Line, I thought that firework safety might be an appropriate topic to touch upon.

Most of us are probably all too familiar with fireworks and most have stories of burns or near misses with roman candles or bottle rockets that have left us with a story or a warning for the youth of today wanting to set off these fireworks. Let's face it sparklers and smoke bombs are cool and all, but the stuff that launches into the sky or has the potential to blow off an appendage and leave us scarred for life are the really attractive types of displays people want to see, some will even travel out-of-state to procure some of these "illegal" type explosives.

Growing up I was no different, and I had a father that not only loved the 4th of July, but celebrated all our independence by displaying a rendition of battle that the whole neighborhood was invited to participate in. He was not a pyrotechnics expert by any means but he did have all his fingers so there was a level of trust we all had in him.

These shows were looked forward to by the whole family as well as the

neighbors. My father never disappointed, the louder the cheer the better the show! He did these shows since I was 5 years old, so there was never a time in my life that I thought this wasn't normal or completely accepted. He even had me help him set up and sometimes even light the fuse when he wanted more than one or two things to go off in unison. It was an exciting time of year when dad's shows were in the works.

No good recollection of childhood memories would be complete without an all-important safety message. As I mentioned earlier, my father would have me assist him in setting up and lighting the fireworks. One year my uncle brought a mortar tube and shell over on father's day, my father, my uncle, and I all went out on the pier to light this thing off – which was the pier that was the standard launch platform every 4th of July. We are out on the pier and my father sets the mortar shell on the tube and lights the fuse. These fuses are generally over a foot long so there is ample time to clear the area before the thing launches into the air. In this instance however my father and uncle never

unwound the wick from the shell, and so the shell not only would not fit into the tube, the wick also crisscrossed so that it lit the fuse in several areas, completely taking the foot long wick and decreasing the length substantially. My father seeing that it wasn't fitting in the tube told his one and only son to push it in, being the obedient son I was I tried pushing the lit mortar in the tube, first with my foot and then, at the request of my father, to use my hand – and that's what I did next.

At this point, I remember a flash of light, a loud bang, and the fact that my face burned and I could not see, that and the fear of not knowing what the extent of my injuries were. My father and uncle grabbed me and carried me into the house, my mother frantic, they took me to the sink to try and flush my face and eyes, my hair burned, my eyelashes singed and my eyebrows were gone, I looked like a cartoon character that lit off TNT. My next stop was to the Emergency Room at Mercy Medical Center in Oshkosh.

At the ER my eyes were flushed for several hours using bags of saline and contact type IV tubing. It wasn't comfortable but by the end of it I could see again

and my eyes didn't burn nearly as bad. I had some damage to the corneas and a healthy burn to my face along with a ton of burnt hair, missing eyebrows, and singed eyelashes. Had the mortar gone off when it hit my head the Doctor thought it would have killed me--I was lucky!

The safety message is really self-explanatory, I have not lit off a firework like that since the accident happened, I can still remember that event like it was yesterday, I can smell the burned hair and gunpowder, it's not something that was pleasant to go through and I firmly believe that fireworks should be left to the professionals.

I don't tell this story often, it wasn't a proud moment - it was terrifying. I cannot imagine what my parents were going through or how my dad felt as this all was happening, But I wouldn't want this for my kids, and I certainly wouldn't want to feel responsible for injuring one of them through any preventable action of mine.

So stay safe and leave the fireworks displays for the people who actually are licensed to do them, it only takes one mistake to change a life forever!

Summer Safety Tips



Keep these tips in mind as you and your family enjoy summer vacations, camping, family reunions, picnics and the Fourth of July.

Fire safety

Photo



Build campfires at least 25 feet away from tents, shrubs and anything that can burn.



If you want to see fireworks, go to a public show put on by experts. Sparklers can reach 1,200 F and cause third-degree burns.



Use propane, charcoal and wood pellet barbecue grills outdoors only. Indoor use can cause a fire or carbon monoxide poisoning.

Place your grill well away from siding and deck railings and out from under eaves and overhanging branches. Do not store or use a grill on a porch or balcony.



Use chimineas, outdoor fireplaces, and fire pits outdoors only and at least 10 feet away from your home or anything that can burn.





PEER FITNESS TIPS

By: Peer Fitness Trainer
Jack Prall



Sleep has been shown to help the body by boosting immunity, balancing metabolism and hormones, regulating blood sugar levels, and suppressing cancer cell growth.

THE GUT-SLEEP CONNECTION

Research unravels the amazing link between sleep and the gut.

On average, we spend one-third of our life—about 25 years—sleeping. **Sleep** is an integral part of every day, and yet it eludes many. For others, sleep hasn't made the priority list.

According to the Centers for Disease Control and Prevention, an estimated 35% of U.S. adults do not get enough sleep (CDC 2016). Some 50–70 million people suffer from at least one sleep disorder, with 30 million struggling with insomnia (Institute of Medicine 2006). Sleep aids are a multibillion-dollar market (Consumer Reports 2016).

A lack of sleep brings deeper implications as research finds connections to heart disease, diabetes, obesity, Alzheimer's, depression and cancer (Cappuccio & Miller 2017; McHill & Wright 2017; Mullington et al. 2009; Vaughn, Rotolo & Roth 2014; Walker 2017).

As sleep scientists dive into the questions of why we sleep, what happens when we do and how it affects our health, the answers are bringing us closer to understanding the extraordinary ways a human being functions. One that fascinates is the **gut-sleep connection**.

The gut and sleep? There is more to it than munching too many chips while binge-watching a favorite show and then tossing and turning all night. Home to thousands of bacteria that make up the microbiome, the gut affects appetite, metabolism, weight management, and whether or not a sound sleep arrives at night. To understand how nutrition, the gut and sleep interact, take a closer look at the purpose and physiology of sleep. Then discover the intricate web that ties together food and drink, the gut, and the health benefits of sleep.

Why Do We Need Sleep?

When we hit the pillow at night, we may perceive sleep as a resting period, but for the brain and body, it's a complex, metabolically **active time**. All aspects of our being—systems, organs, tissues, mind—are supported or compromised based on how much and how well we sleep. Sleep is designed to restore, recalibrate, renew and upgrade brain and body functions.

From the perspective of the brain, sleep aids in problem-solving, influences memory retention and the ability to concentrate, regulates emotions, improves coping skills, and inspires creativity.

The physiological processes behind all of these actions require being asleep. In a growing number of studies, the consensus is that the less we sleep, the higher our rate of diseased states and the shorter our life span. That explains why sleep determines health and quality of life.

What Regulates Sleep?

The two main factors regulating sleep are circadian rhythm and sleep drive. Both of these factors are linked to the gut, specifically the microbiome and the food choices we make. The first is our internal biological clock—called the suprachiasmatic nucleus—which creates our **circadian rhythm**. This internal rhythm, which has a cycle of roughly 24 hours, helps stimulate wake-sleep periods and is highly influenced by the environment, particularly light exposure. Beyond regulating wakefulness and the desire to sleep, circadian rhythm plays a role in determining body temperature, hormone secretions, metabolic rate, emotional state, appetite and digestive function.

The second is our **sleep drive**. During our wake cycle, the chemical



The Gut Sleep Connection Continued...

adenosine is released and acts as a barometer of how long it's been since we last slept. The chemical accumulates in response to increased energy consumption and metabolic activity from the day's events. After an average of 12–16 hours of wakefulness, adenosine decreases alertness and eventually brings on a desire to sleep (Bjorness & Green 2009; Huang, Urade & Hayaishi 2011; Walker 2017). The combination of an internal chemistry shift and our circadian rhythm interacting with environmental cues helps regulate the timing of sleep and when we wake the next morning. These factors not only lead to sleep but launch a well-orchestrated sequence of events once it begins.

What Happens During Sleep

After waking from a bizarre dream, we sometimes perceive sleep as chaotic and unstructured. The opposite is actually true. Sleep is highly controlled and predictable. Two different types of sleep occur through a total of five stages that repeat every 90 minutes for about five cycles over a full night's sleep. It is that precise. The two types of sleep are non-rapid eye movement (NREM) and rapid eye moment (REM).

Non-rapid eye movement (NREM) sleep has four stages that take us from light sleep to deep sleep, indicated by slow brain waves, lower pulse and dropped blood pressure. We spend 75% of our sleep time in NREM. NREM plays a role in

transferring new information, skills or memories to long-term storage. A part of that process is weeding out unnecessary neural connections so that we remember what we need to and forget what we don't (McCarley 2007). It's during the deepest stages of NREM that the body boosts immunity, balances metabolism, regulates blood pressure and repairs muscles/tissues.

Rapid eye moment (REM) sleep, commonly known as the dreaming stage, takes the information transferred during NREM and integrates it with all other existing memories. REM helps make sense of what we learned that day and places it in the context of what we already know. REM is also a time when we have an emotional reset and find resolution with the day's experiences. This overnight therapy session is what makes it possible to wake level-headed, accurately read social cues and navigate through life's challenges (Kahn, Sheppes & Sadeh 2013; Nishida et al. 2009). The reason why people experience the bizarre scenarios that can arise in dreams during this stage is because rational thought is deactivated and anything is possible! This is also how sleep inspires creativity and assists us with problem-solving—by helping us get out of our own conscious, sometimes narrow-minded way.

All types and stages of sleep have specific functions benefiting health and well-being. The timing is just as important as the action of sleep. Research demonstrates that the early hours of sleep are dominated by NREM, while the later hours, especially the last 2 hours of an 8-hour sleep night, are dominated by REM (Walker 2017). Sleep stages are experienced every 90 minutes; the ratios simply change. This makes getting a full night's sleep, aligned with circadian rhythms and without sleep aids, critical to reaping the health benefits of sleep.

What Happens When We're Sleep Deprived?

A loss of sleep, defined as sleeping less than 7 hours a day, impairs well-being and results in a suboptimal physical and psychological state. Even over a mere 10 days, the brain and body are deeply compromised. (Just imagine what years of insufficient sleep may do.) Sleep deprivation affects our ability to concentrate, learn and remember (Havekes, Vecsey & Abel 2012). It also influences our emotional state by increasing reactivity, mood swings, aggression and hypersensitivities, while creating a fear-based mindset. A lack of sleep literally makes us more animalistic by switching our brain activity from the cortex to primitive brain

Eating Strategies for Improved Sleep

➤ Eat a Primarily Plant-Based Diet.

This helps regulate blood sugar levels and stimulates serotonin and melatonin, calming the nervous system and helping us get to sleep.

➤ Add Small Amounts of Fermented Foods

Gut-sleep connection is influenced by the diversity of bacterial strains. Adding small amounts of fermented foods to our diet can boost sleep.

➤ Minimize Caffeine Consumption

Caffeine halts the communication that regulates the wake-sleep cycle.

➤ Make Dinner the Smallest Meal

The digestive system is most active during earlier parts of the day. Consider a soup or snack for dinner no later than 7pm.

➤ Add Mindfulness to Your Eating Experiences

Practice eating slowly, being present and aware which can be associated with decreased inflammation and improved sleep.

Lifestyle Actions for Better Sleep

Particular daytime actions and nighttime routines influence the ability to fall asleep and experience a night of quality, restorative rest.

Daytime Actions:

- ✓ Begin and end your day with meditation to help set the tone for the day's challenges and to decompress as you settle in for the night.
- ✓ Exercise! The benefits include boosting immunity, improving cardio function, managing metabolism, enhancing mood.

Nighttime Routines:

- ✓ Wake up and go to bed at the same time every day.
- ✓ Remove or avoid laptops and TV screens.
- ✓ Don't fall asleep on the sofa – head to bed when sleepy.
- ✓ Make sure the bedroom temperature is a little cooler.
- ✓ Avoid sleep aids.
- ✓ If you need to use an alarm clock, do not press the snooze button.

The Gut Sleep Connection Continued...



regions. Forget about problem-solving, brainstorming, insights or creativity. Those are out of reach.

Sleep deprivation also takes its toll on the body. Without enough sleep or enough *quality* sleep to nurture all sleep stages, renewal, detoxification and enhancement processes are never fully completed. Over time, this leads to compromised immunity, unmanaged inflammation and the onset of diseases and conditions like heart disease, diabetes, obesity, cancer, depression, anxiety, Alzheimer's, autoimmune illnesses and digestive disorders (Ali et al. 2013; Covassin & Singh 2016; Hsaio et al. 2015; McEwen & Karatsoreos 2015; Mullington et al. 2009; Nagai, Hoshida & Kario 2010).

A major pathway that links sleep to illness is the way circadian rhythms regulate immunity and the corresponding hypothalamic-pituitary-adrenal (HPA) stress axis (Buckley & Schatzberg 2005; Hirotsu, Tufik & Andersen 2015). When we are sleep deprived, the HPA stress axis is activated, resulting in hormone shifts: Cortisol increases, and levels of growth hormone decrease (Besedovsky, Lange & Born 2012; Kim, Jeong & Hong 2015; Rea, Dinan & Cryan 2016). This compromises immunity, affecting our ability to manage inflammation and fight off infection.

As sleep deprivation keeps the stress axis on high alert, the effects alter metabolic activity, particularly insulin regulation, thereby further suppressing the immune system (Tsai et al. 2018). In conjunction with the hyperactive stress response, the sympathetic nervous system (SNS) remains in a fight-or-flight status. When the SNS stays in an "on" position without balance from the parasympathetic nervous system (PNS), the result is suppression of anti-viral and anti-inflammatory processes and higher susceptibility to disease.

Fortunately, there is good news: We are taken out of the SNS during NREM sleep, and the release of stress chemicals, specifically norepinephrine from the SNS, shuts off during REM sleep (Walker 2017). Sleep helps us manage stress, resolve emotions and wake with a clear head. Since inflammatory and psychological pathways are shared in the body, this in turn affects immunity (Sternberg 2001).

But it doesn't stop there. The sleep-immunity connection is also intricately linked to the gut.

How Does Gut Health Play a Part?

The gut goes beyond its mechanical role of digesting food and extracting energy. Also known as the enteric

nervous system, the gut regulates mood, behavior, emotions and higher cognitive function. As research continues to uncover these connections, we are identifying practical lifestyle actions with the gut as a starting point. Exploring the gut-sleep connection is another way to appreciate the holistic design of a human being. Everything about us is connected. How does sleep manage our appetite, metabolism and long-term weight management? It comes down to hormones. When we're sleep-deprived, there is a shift in many of the hormones that stimulate hunger and alter our metabolism.

Lifestyle Choices and Nutrition Aid the Gut-Sleep Connection

Sleep is a pillar of health and well-being, as it touches all aspects of body and mind. We can begin to improve our quality of sleep, decrease the onset of chronic illnesses and, perhaps, extend our life spans by beginning to nurture the gut-sleep connection. This begins with food choices and mindful eating and extends into our daily actions. The human design is holistic, with every system of the body connected, including the gut-sleep system. Seek out consistency in your eating and sleep routines to reap the benefits.

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