

What is a 72 Hour Kit?

A 72 Hour Kit is an ensemble of tools and supplies needed to sustain life, minimize suffering, maintain dignity and independence, and facilitate appropriate actions in an emergency requiring evacuation. It may be configured to serve a family or group, but normally it would be tailored to serve the needs of an individual and his or her responsibilities, and each person in the group would have their own personalized 72 Hour Kit. In concept it (1) contains water, food, clothing, shelter, supplies for sanitation, medical supplies, contact information, identification and other vital documents, aids to mobility & navigation, and comfort items. (2) It is packaged in a backpack or other carry-able container, and (3) it is assembled in advance, and kept in a safe but convenient location in the home or automobile where it can be grabbed on short notice under essentially all scenarios. What luggage is to the traveler, what a floatation jacket is to a boater, or parachute to a flyer, a 72 Hour Kit is to anyone suddenly forced by an emergency to leave home.

You will always choose to endure an emergency at home when you can, to protect it, and because that is where most of your emergency preparations are. When you are forced to evacuate, you will always choose to take your personal automobile if you can, because that is how you are most mobile, and can take the most stuff. The 72 Hour Kit is the core of your evacuation preparations because it is what you take with you for the remainder of the journey when the car breaks down, or if you are forced to leave home on foot.

How did it get that name?

In a major disaster, such as a flood, earthquake or hurricane, it typically takes three days (= 72 hours) for rescuers to locate all the people who need help, and begin to get that help to them. During this critical time, and until that help arrives, the individual must sustain himself and his family by his own resources. Three days is, of course, only a rule of thumb, and good preparations would sustain a person much longer if they had to, which is sometimes necessary.

Why do I need one?

A seatbelt is rarely needed by any given individual, and does not always suffice to save his life. Nevertheless we have come to accept that the potential value of seatbelts justifies their being worn by all passengers on every trip. So compelling is the benefit that it has become law. Similarly, the number of persons forced to evacuate their homes each year, for hours or days or permanently, is comparable to that of car wrecks. Hundreds of thousands of people are sometimes displaced by a single hurricane, and similar numbers accrue in the aggregate from chemical spills, hostage situations, construction mishaps, floods, fires, storms, earthquakes and so forth, which occur in all parts of the country. The dangers posed by natural and man-made disasters are by no means uniformly distributed, but no one is so safely situated, or so relieved of the responsibility to rescue others, that the power to bolt and remain afield overnight is not relevant to their life.

How much is this going to cost me?

If you take it seriously, between nothing and \$300. It all depends on what you want in your Kit, and how skilled you are at making and improvising things. If you make your own backpack, save \$20 to \$100 dollars. Convert empty 2-liter soda bottles to water jugs, save \$20. And so on. A better question is 'What is it going to cost me to be caught unprepared? My life? My child's life? My job? An operation? Lost time from work? My dignity?' (If you think your dignity isn't worth \$300 you should spend a week in your pajamas at a Red Cross shelter – a real possibility – with camera crews prowling around looking for the most pathetic images.)

Where can I buy one?

There are a few companies that sell what they call a 72 Hour Kit, but at best such kits are a suggestion, a starting point, for the real thing. What you should buy instead is a backpack that fits your torso, some Nalgene bottles and your favorite breakfast cereal to put in them, hiking shoes, a wool blanket, a tent, . . . and so on down the list of things you might personally choose to have in hand on a dark scary night. High claims and imaginative products will not take the place of basic commodities, quality hardware, and a lifetime of practice. The economy of scale that merchants enjoy is offset for the consumer by the fact

that a generic kit inevitably contains some things he personally will not need, and misses many things he might need and must think of and purchase separately anyway – but most pre-assembled kits are full; there is no room for your extras. Most treacherous, they have nowhere near enough water (2 cups per day!, and mylar water packs are not refillable), virtually no food (1 food bar for 3 days!?), no clothing, no tools.

Nor are they meant to be lived out of; the commercial concept is that, like a fire extinguisher or spare tire, you buy it and forget it until you need it (only then to wonder if 100 hour candles are edible.) Some people want it that way, but it is not as effective. I have encountered no reports of anyone actually being benefited by a commercial 72 hour kit. If you didn't construct it yourself, and it isn't part of your daily routine, you won't trust it, and may not even think of it, when your life is on the line.

It will take you all of two minutes to read the manufacturer's list of ingredients, then you know as much as they do about it (appallingly little). On the whole, your money is better spent configuring it yourself from scratch, and in any case it is vital that you be the one to put it together so you will be intimately familiar with what is in it. It's sort of like packing your own parachute, only more so.

A good 72 Hour Kit is adapted to your length and strength, your diet, your budget, your options as a refugee, your climate and season--your life. Nobody can sell you a kit that will serve you as well as one you put together yourself. How would they include your family's phone numbers, plate numbers, account numbers, and photographs; or copies of your deeds, mortgage and insurance papers? How would they know your coat and shoe sizes, or allergies, or prescriptions? Why look to a mail-order house in another state to pack your suitcase for the worst trip of your life?

All right, so how do I make one?

First: Start with a container. If you have a backpack, or can afford to just go buy one, start with that. Otherwise a satchel, duffel bag, a box, a five-gallon bucket, a tote pan, a suitcase, or anything similar.

Second, a notebook, for making lists, keeping records, and thinking on paper.

Third: Imagine that sometime in the next several days, there will come a loud knock on the door. An officer will say an evacuation is necessary, and you have three minutes, by his watch, to leave the house. The reason he gives is convincing, and the problem is regional. He also reports the water lines have been contaminated, and you must not drink from the faucet. The electricity is off and the phones are down. There will be no utilities within the area for at least a week. You may remove things from the car, but you may not take it. You must go a mile on foot, with the children if you have children, then go by bus to the next town. Because of crowding and confusion at the make-shift bus terminal, you and your spouse are hustled by the National Guard onto separate busses. The busses have no windows, and there are delays getting started. Everyone around you is frightened and insecure

Half way to their destination the busses stop because a bridge is out. They let everyone out and go back for more people. By the time you get there 28,000 civilians have been left milling around in the dark on the edge of a ravine waiting for someone to do something. The scene is noisy and chaotic. No one had a plan for this, and some individuals are behaving badly.

You begin to search for your family among the thousands of refugees who keep pouring into the area. A helicopter arrives and announces that the Red Cross will set up a shelter on the other side of the ravine in about 24 hours – just sit tight. After a second 24 hour period you will be free to return home on foot, if you wish, since by the time you get home the immediate danger will have passed, but there will be no rides. Any water you find along the way will be bacteriologically unsafe to drink, and don't count on finding any unrealistic sources of water.

Now ask yourself question like these: What do I need to prepare for this kind of challenge? What will I drink? How will I sleep? How will my sweetheart and I find each other in a crowd in a strange place? Remember 9/11? What were the two great preoccupations? – (1) getting away, and (2) finding loved ones.

Play this game often. Change the scenario from time to time, varying the season, weather conditions, and time of day. Build into it the types of difficulties you consider our region subject to. Adjust it to be challenging to you, but not overwhelming. Then use these imagined experiences to guide the construction of your 72 Hour Kit. Your Kit is what you will take with you to sustain yourself. Keep in mind it is not necessary to know the cause of the evacuation to make meaningful preparations, since your kit addresses

primarily your daily personal needs. The purpose of the game is to illuminate what those needs are, and make your preparedness measurable. As you get better at this exercise, imagine that the knock could come at any hour, and put things in order each night before you go to bed.

Fourth: As you watch or listen to the news, every time there is an evacuation or survival situation described, ask yourself what kind of a 72 Hour Kit would have served the person best. If they had known it was coming, what preparations would have eased or solved their predicament? The media bring us a continual stream of these real-life lessons, if our eyes are open to them. Keep notes, and watch for trends and strategies.

Fifth, look over the catalog below, and pick out those items that you consider unquestionably good ideas for your situation, and add them to your list.

Sixth, go shopping, and add your new supplies to your container. Upgrade your container at every opportunity, until it can no longer be improved upon, and continually refresh and improve everything in it.

Seventh, go for long walks regularly, sometimes with your Kit, to condition yourself physically for carrying it in an evacuation.

Where should I keep it?

Some suggestions: Near the entrance you routinely use; i.e., the front hall closet. In your bedroom closet, or on a chair in the bedroom, where you can live out of it as though it were another drawer. Someplace it will be safe from rodents, theft and earthquake. A habitual place where you will remember it even if you are drowsy or terrified. Perhaps in the car, provided the summer heat will not damage it, and you will remember to replenish it often.

That's in good times. During a crisis, never be out of arm's reach of it, never let it out of your sight, never trust a stranger not to bother it.

Considerations

Timing: Fully provisioning a 72 Hour Kit is easy during good times, but more difficult during a crisis. Sometimes there is an intermediate phase prior to the impact of an emergency during which specific motivation to prepare is making its appearance, but serious impediments to that preparation are also arising. It is best to make your preparations now, while you have the time to do it well, and full access to resources. Now is the only good time. It's like killing a rat: first you quietly block his retreat, then you make your move against him. Nature knows this strategy. First your options to prepare are withdrawn, then you see the peril you are in. Putting aside a Year's Supply is only possible when no one thinks you need one.

When Less is More: There are among us those who could weld up a pack frame fit for a horse, load it with 200 pounds of provisions, and walk off with it. They should, however, and the rest of us must, carefully decide how much weight is optimal and stay within that allowance. Depending on your physical condition, from weak to athletic, your Kit should weigh no more than 1/8th to 1/4th of your body weight. If it is in any kind of container besides a backpack then reduce the allowance further by a factor of two. This means a 200 lb. woman unaccustomed to walking a mile without resting should limit her satchel to 12 lbs., while a 200 lb. man in great condition might opt for a 50 lb. backpack. These two numbers, 12 and 50, are probably the least and most any adult should attempt. Soldiers go heavier, but experienced hikers do not. It is your decision, but mobility is the whole idea, and the moment the Kit becomes either a physical or psychological impediment to walking or running, it defeats the purpose. Since a gallon of water weighs 8.3 lbs., it is unreasonable to expect children under 50 lbs. to fully provision themselves. But they can and should help.

Further to this point, small changes in the load make a big difference in fatigue and failure rate in both the hiker and his equipment. A given medium weight pack might last you indefinitely loaded with 40 lbs., but quickly break down under a 60 lb. load. In machines wear is linear, but fatigue, which leads to broken components, is highly non-linear. Then there are your joints.

Organize contents by Modules: See instructions on "Backpacks."

Where is it? There is a sense in which a 72 Hour Kit consists entirely of where things are. Suppose the Bishop took you aside during Sunday School one Sabbath and said, very calmly, “Brother and Sister So-and-so, a situation has arisen in which we need you to go up and watch the church cabin for a few days. You’ll have to park a few miles from the cabin and hike in, and you won’t be able to stay inside – you’ll have to camp out on the property. But we basically just need you to be there, hang out, and come back 72 hours later. We have babysitters for your children, we’ve already cleared it with your employer. Can you be ready to go by sundown?” Most of us could do it! Without shopping on Sunday, and without consternation, most of us could go through the house and round up some supplies, put them in something we could carry, make a selection of clothing, top it off with a favorite book, and go up on the mountain and have a wonderful, relaxing, three-day vacation. A 72 Hour Kit is largely a matter of keeping those things together all the time. It is not an assault on Everest, and does NOT entail lots of exotic, specialized gear. It’s the normal everyday stuff, IN ONE PLACE, ready to go.

Needs and Options – a Catalog of Suggested Ingredients

Many authors who have written on this subject make two lists: (I) Essential ingredients, and (II) Optional ingredients; and of course everyone’s list is different. The truth is, everything is optional, nothing is essential, in the sense that you would certainly die or be sorry without that thing. The reason for this is that (a) different events accentuate different needs, hence the importance or usefulness of a given item depends on the event, (b) most needs can be met in many different standard ways, (c) people are different, and respond very differently to a given stress, and (d) the ability to improvise covers a multitude of deprivations. Anticipating and meeting your needs, in the simplest, surest way, is what is essential; hardware is not.

That being said, there are many items of hardware and supplies that have proven to be especially effective in meeting human needs, crisis or not. We present here, roughly in order of criticality, a list of basic NEEDS to be considered, and under each some suggested items, with commentary, that address those needs. We urge you not to waste energy speculating over whether you should carry a given item. Identify reasonably probable needs, then select an approach to meeting that need. In the end your Kit must be simplified down to an ensemble you can run with. Literally.

THE NEED TO COMMUNICATE

The ability to communicate sustains confidence, summons help, saves time, conserves energy and resources, mitigates danger, promotes unity, and may enable others to avoid a crisis altogether. The experience of those among our countrymen who have survived the worst experiences mortality can dish out – prisoners of war in Viet Nam – found that the ability to communicate with each other was their final, most precious, and most powerful possession. Their use of “the tapping code” is one of the most fascinating and revealing stories in human history.

Contact Information: Family, Church, employer, school, police, ambulance, insurance, tow truck, etc., written down and waterproofed, or otherwise protected from the elements. **Identification.**

Vital Information: Account numbers, insurance group and policy numbers, proof of citizenship, etc.

Notebook, Pens, Journal. Some emergencies flood you with strange information that you will want to remember clearly. Policeman’s name, address of someone who helped you, milepost number, etc.

Cell phone. May work, may not. If you have one, when you lay it down in the evening put it with your pocket stuff in your Kit. If the batteries will die before the substation is fixed, don’t take the weight.

Chemical light sticks. Not a bright light, expensive (\$2 each), but they can be seen from all directions, so good to signal your presence. Available in colors, and they work under water. One strong point is that they are safe to use around gas leaks and spilled gasoline.

Camera. If you are not in a panic you may have a chance to get some great pictures.

Surveyor’s ribbon. Colorful attention-getter, could be used to adorn a flag the family would recognize; and with a permanent **felt-tip marker** you can write messages on it. **Flags, banners, and pennants** can be

made of almost anything, and are a proven ancient way to communicate your unique presence in a large crowd. Even a rent coat on the end of a pole has been used.

Radio. Battery-powered, 2-way or AM/FM for listening to the news.

Whistle. High-pitched sounds do not propagate far in a forest, and it is difficult to tell which direction they came from, but it is a way for children to keep calling for help when their voice gives out. If you are going to issue them you should also work out a simple set of signals and rehearse them. Many authors recommend whistles, but I have encountered no reports of their success. Avoid a metal whistle below freezing, as it may take the skin off your lips. (Three of anything is a universal distress signal – don't use it unless you truly expect everyone in the area to drop what they are doing and come to your rescue. Do not use an SOS or three gunshots, etc., to signal just your buddies – everyone who hears it will drop what they are doing and come to save you, and be very very ticked at your thoughtlessness.)

Drumming is one of the oldest and most effective distance signaling methods, partly because the low pitch travels further, old people can hear it, it is locatable, data rate can be relatively high, and there is almost always something to pound on.

The Tapping Code. The letter 'k' is always replaced with the letter 'c', reducing the alphabet to 25 letters. They are arranged consecutively in five rows of five letters each. Each letter is then represented by two numbers, the first being its row, and the second its column. 'X' is used to separate sentences, and abundant use is made of abbreviations and acronyms.

A	B	C	D	E	1-1	1-2	1-3	1-4	1-5
F	G	H	I	J	2-1	2-2	2-3	2-4	2-5
L	M	N	O	P	3-1	3-2	3-3	3-4	3-5
Q	R	S	T	U	4-1	4-2	4-3	4-4	4-5
V	W	X	Y	Z	5-1	5-2	5-3	5-4	5-5

A message was initiated by tapping out [.], a sequence called “shave and a haircut,” to which anyone listening would answer [. .], and the conversation was underway. POW's report data rates as high as 30 words per minute were achieved. If a fellow prisoner rised a beating sending you a message, you were expected to tace the same risc giving him the courtesy of an answer. For hours into the night the prison buzzed lice a soft symphony of woodpeccers. Many other sounds, such as coughing, sweeping, snapping a towel, etc., were employed in order to stay in touch without being detected by the guards.

THE NEED TO SEE

Eyeglasses. You can mess with contacts if you want to, but eyeglasses are much quicker, safer and less troublesome. A Croakie or similar **retainer** adds safety in vigorous activity. The ability to see is so important that a **spare pair** safely tucked away in your Kit is not unreasonable. Also eyeglass repair kits weigh little; if you have one at home, why not keep it in your Kit? **Sunglasses**, if you normally use them **Flashlight. Headlamps** (AA batteries) are very useful, as they leave your hands free. Small high-quality flashlights, two AA battery size, (Mag Lite™ or Brinkmann™) are lightweight and dependable. I recommend having both a headlamp and a small conventional flashlight. These are for navigating hallways and trails -- Search and Rescue requires something bigger.

The point is, it is dark half the time, and if you can't see then you are going nowhere. Don't buy toys, and always have a backup. Standardizing on a given size battery simplifies things. Check all regularly to be sure batteries are fresh, and carry at least one change of batteries for each flashlight.

Candle lantern. These are efficient and cute but fragile. You may want to modify it to make more durable. They are also expensive; consider designing and making (and rigorously testing) your own. Candles not in a lantern are susceptible to a breeze, and extremely dangerous inside a tent. The heat goes up and can melt a hole in a nylon tent or catch it on fire. If you put it down low you'll bump it or burn your sleeping bag.

Never leave a candle, lamp, or candle lantern unattended anywhere. Does a candle without a lantern belong in a 72 Hour Kit? Yes, a small one, perhaps 2 or 3 hours worth, because of its versatility as a source of both heat (fuse rope ends, sterilize needles, ..) and light, though limited in both categories. Don't forget matches.

Goggles. Certain situations require additional eye protection: dust storms, volcanic ash falls, navigating brushy terrain at night, etc. (Nothing like a good poke in the eye to make you break off the search.) Keep a set in your car kit, and transfer it to 72 Hour Kit if a developing situation warrants it.

Binoculars. In time of war, where you really need to see the enemy before he sees you, or an extended stay in the wilds, where you depend on taking big game, these could be worth the effort, but they are very heavy, and not normally warranted in a 72 Hour Kit. For Search and Rescue they are a natural tool, in which case you should select for high image sharpness, not high magnification.

THE NEED TO WALK.

Shoes. Next to vision in importance. Unless you are a Hobbit, you absolutely must take care of your feet, or you will quickly become immobilized once outside the house. Invest in good quality protective footwear, sized for thick **socks**, and keep a clean pair of socks in the shoes when not on your feet. Add a light pair of slip-ons or canvas shoes, for wading streams and for back-up. Always check for scorpions before putting shoes on. Where man has been there is broken glass, and where he has not there is cactus. Never leave the house without shoes you could walk home in.

Magnetic compass. Knowing your directions is essential, but a compass is only one of many ways to do that. It just happens to be the way that works under the widest range of conditions.

Maps. It would be well to have in your backpack maps of the city, county, and our quadrant of the state. In your car you would have additional maps covering the distances you might ever go in your car – ours and adjacent states at the least.

Nail Clippers. Keep your toenails well-trimmed to avoid problems. Stop and trim at the first indication.

Don't take non-essential objects/treasures to "keep them safe" – leave them in a safe place at home and travel light.

THE NEED FOR SHELTER

Rope. Many improvised shelters depend on small rope to hold them up. I consider 50' of 1/8 - 1/4 inch rope extremely valuable. So do most outdoorsmen. Knowledge of basic **knots** is invaluable. Every adult should know at least a dozen reliable knots, and when to use each one.

Clothing. A complete change of clothing (in waterproof bags) is a standard recommendation for 72 Hour Kits – underwear, pants, shirt, socks. Make these appropriate to weather and conditions. It's nice to clean up, but dry clothes are essential if you get wet. Rain is most dangerous when you can't get dry afterward.

Sweater and Windbreaker. A versatile combination that doesn't take up too much space.

Coat. You can be a little cold for short periods and just be unhappy, but very cold for very long is life-threatening. Loss of core temperature also quickly impairs judgment, which increases the danger.

Coveralls. A simple solution for added warmth and quickly changing appearance at the same time.

Blanket, quilt, or Sleeping Bag. Few things make for a long miserable night like being cold. Ask yourself 'What is the minimum I would need to spend the night outdoors tonight?' and try to cover that in your Kit. One night at a time you can stay awake and active to stay warm, but in 72 hours it is infeasible not to sleep. If your sleep is not adequate all your other efforts will be compromised.

There are a few tricks with sleeping bags that are worth knowing. First, as with any bedding, dirt and oil from your skin is absorbed by the fabric. If you fold a full-size bed sheet in half and place it in the bag, you can sleep between the sheet and keep the bag much cleaner. Second, expensive goose down is the warmest insulation for the weight, when it is dry and in good condition; but it is harder to maintain than synthetic insulation because it absorbs moisture, loses 'loft', and requires special laundering—after which it is never quite the same. Once it gets wet it takes days to dry. A material called "Hollofil II" is the all-around best material because you can wash it, and it is less susceptible to wet conditions in the field. Down bags work best in the polar regions and high altitudes where the cold makes the air extremely dry.

Third, if you sleep in the open dew will form on the top of the bag, then soak into it, making it heavier and colder. It can take hours--and good weather--to dry it out again. If you cut a canvas or nylon tarp a little larger than your open bag, and use it both as a ground cloth and dew shield over the top of the bag at night, the bag will stay much dryer. The tarp dries quickly in the morning because you can hang it up, and rolling the bag up in the (dry) tarp also keeps it clean during storage and transportation.

Fourth, in a sleeping bag your feet will sleep warmer with your socks off, especially the ones you've been wearing all day, since they tend to retain moisture and restrict blood flow. Feet must be washed and thoroughly dried out daily to remain healthy.

Tarp. 6'x8' or 8'x10' nylon tarp is light, compact, and can easily be used as a rain coat, ground cloth, or configured many different ways to make a tent. You may wish to add more grommets when you get it home from the store. A "tube tent" is just a very cheap tarp without grommets—not versatile.

Tent. This is a big topic area, and opinions are all over the map; but unless there is an ongoing drought, assume sitting in the rain must be avoided and adopt a way to deal with it. A tarp will keep the rain off or provide shade, but it takes a good tent to deal with wind, mosquitoes, excessive cold and provide privacy in a crowded campground. A backpacker's tent is a little heavier and more expensive than a tarp, but with sewn-in floor and zipper closures will keep arthropods from crawling into bed with you during the night. These range from one-person bivouacs and two-man tents on up. Practice setting it up now and then, and toss the little wire tent pegs that come with it in your scrap box – they are useless. A ten-pound rock inside each corner will hold it in place.

Hat. In each season some type of hat is needed for extended outdoor activity. The sun in summer, the cold in winter, each requires protection for our heads and eyes. Especially in the Arizona desert in summer, a wide-brim hat, or baseball cap worn over a large handkerchief, is an undisputed survival item.

Pack cover. You must keep your pack from being rain-soaked, whether hiking or resting. You can improvise a cover from a plastic lawn bag, or make a better one ahead of time.

Plastic sheet. To improvise an escape from the rain for a few hours. Hardware stores sell it by the roll.

Metalized Mylar. The so-called "space blanket": Highly visible. They reflect your body heat back to you, but are not soft and do not insulate the way a blanket does. Recently they have become available as tubes you can climb inside of, which might work pretty well, but for \$25 it is a rich-man's solution more of interest in a northern climate. If you are going to include one, at least buy a second one to play with and get some experience. The combination of low cost (I just ordered some for \$3 ea.), light weight (55 grams), and compact size (5"x3"x0.5") make them a worthwhile addition to your Kit. Because they do help, and the burden of having it in your Kit is negligible, most survival instructors recommend them. Can provide shade.

Poncho. For rainy weather. Doubles as a ground cloth, shade, windbreaker. **Raincoat** will keep you dryer, but is heavier.

THE NEED FOR WATER

Not far from Tucson recently, on what should have been a relatively easy morning hike, a pair of young, healthy, experienced hikers died within one hour after running out of water, only a mile or two from their car. Dehydration is a killer, and it can act with impressive rapidity.

The body is 60% water and cannot store a reserve. Frequent intake is essential. Daily requirement is 3 – 4 quarts, give or take. The stress and exertion of evacuation could easily double this, particularly in hot weather. Some books on desert hiking recommend as much as 3 or 4 gallons per day for some hikes, placing extreme demand on the body's electrolyte balance as well. (Sitting completely still in cool weather and eating little, you might get your requirement down to one quart, but you cannot maintain good health for long doing this.) If your urine is cloudy or dark, you are not drinking enough water.

Effects of Dehydration:

1-5% loss: Thirst, discomfort, lethargy, impatience, lack of appetite, flushed skin, increased pulse, nausea, weakness, stumbling. (A 3% weight loss from sweating and urination corresponds to a 5% water loss.)

6-10% loss: Headache, dizzy, dry mouth, tingling in limbs, pallor, slurred speech, difficulty breathing, blurred vision, can't walk.

10-12% loss: Delirium, swollen tongue, twitching, deafness, darkening vision, lack of feeling in skin, skin shrivels, inability to swallow, death.

Chronic effects: Kidney stones, bladder infections, constipation, which leads to hemorrhoids.

A 200 lb. person contains 58 quarts of water. If he is 2.9 quarts behind on water consumption, that's 5%.

A 120 lb. person contains 35 quarts of water. If she is 1.7 quarts behind on water consumption, that's 5%.

A 12 pound baby contains 111 fluid ounces of water. If he is 13 ounces--less than two bottles--behind on his water consumption, that's 12%, and you've lost him. This is serious stuff.

Because water is heavy (a three day supply (3 gal.) weighs 25 pounds, not including the containers) it is the one thing that a 72 Hour Kit usually doesn't have enough of. This means you must find additional water somewhere. This in turn means you should be prepared to disinfect the water you find. If by boiling,

you will need FIRE and a small **pot (with lid)** of some kind. If by **chlorine** or **iodine**, then these must be in your Kit, inseparable from the instructions on using them. A container of known volume will be needed, probably a second one to pour from as you filter the water, and a **watch** to track the 30 minutes of waiting.

Regardless of your prospects for finding water, if you are very thirsty drink what you have -- don't ration it to the point of prematurely impairing your ability to function. Even if you have food, don't eat if you don't have water, since this would add to your dehydration and sap your strength rather than increase it. But do eat if you do have water...see below.

2-liter soda bottles make good water containers, as do plastic juice bottles. Then there is bottled water in pint and quart sizes. These are excellent because they store for a long time, are re-useable, and because they are small the energy absorbed by sloshing of a half-full bottle is small. Whatever kind of container you choose, have at least two, and **DO NOT THROW THEM AWAY** when they are empty.

Canned soda is better than no water at all, but caffeine increases the need for water, and sugar gives you energy but makes you thirsty. There are 100 grams (~24 level teaspoons) of cane sugar in each liter of cola. If you are accustomed to two cokes every day, then put a six-pack in your Kit, and maintain what your body is used to. Just remember without a refrigerator it won't be cold.

Don't eat snow; the "heat of fusion" (the energy it takes to convert ice to water at the same temperature) will cost you a great deal of body heat. Melt it first, somehow.

See "Safe Water in an Emergency" for instruction on disinfecting water from natural sources.

THE NEED FOR SALT

"Dr. Howard Backer . . . A California physician who for the last decade has been studying heatstroke victims at Grand Canyon National Park (about 125 in an average year there require medical attention) concludes that **most cases of serious heat illness are brought on by drinking too much water and eating too little food. By drinking great quantities of water hikers deplete their reserves of electrolytes, especially sodium and potassium, which aid the transmission of electrical signals from the brain to the body. The resulting hyponatremia, or water intoxication, leads to confusion, disorientation and fatigue.** Backer urges that desert hikers **eat plenty of salty foods** like crackers, gorp, and pretzels and drink electrolyte-rich fluids like Gatorade along the trail, saving the . . . tap water for the evening campfire. Recent incidents seem to bear out Backer's ideas about electrolyte imbalance. . . ."

The World Health Organization has a standard mixture called ORS [oral rehydration solution] they give to babies dehydrated by diarrhea, which is a very severe problem in poor countries and in hard-hit disaster areas. Coincidentally, it is salty enough that well babies won't drink it, but dehydrated ones will. It has been extensively studied and proven near optimum, though in mild cases it can be diluted. It is not readily available in this country, but products like Gatorade™, Pedialyte™ and Ricelyte™ are attempts to do the same thing. The difference is these products have less salt, three times the sugar (and it is sucrose not dextrose) and no bicarbonate of soda. Plus colors, flavors, and preservatives. Sucrose (cane sugar) must be digested down to dextrose (also called glucose). The dextrose is needed because it helps the body absorb the salts -- without it the salt must be much more dilute or it makes matters worse, like drinking ocean water. For a healthy person it doesn't matter, for someone you are trying to bring back from the brink of death it might. Here is how you can approximate the WHO-ORS: to each liter of water add

Morton Lite Salt™	3.2 grams (0.62 teaspoons)
Baking Soda	2.5 grams (0.52 teaspoons)
Table salt	1.8 grams (0.29 teaspoons)
Dextrose (corn sugar)	20 grams (~4.5 teaspoons)

If this less common sugar is not at hand, regular sugar can be substituted, but I have no info on equivalency. It is reasonable to suppose that a little of this mixture (say, one or two spoonfulls instead of 6) added to your canteen at the outset would keep you from ever needing it full strength. Once this mixture, not dissimilar to agar without the gelatin, gets wet it needs to be consumed within a few hours, lest it ferment. You will find dextrose among the beer-making products at the local health food store.

Of course, if you have no water then you have no use for the salt, and if you are eating plenty of salty foods along the way then plain water is fine. **NEVER** attempt to quench thirst by drinking blood, sweat, or urine – body fluids are way too salty.

THE NEED FOR FOOD

You can go 72 hours without eating and survive, but you won't like it. Better to take some food along to maintain your strength and cheerfulness. Choose foods that are non-refrigerated and require no cooking. This reduces your need for fuel, cookware, and utensils. You are completely absolved from your diet during an emergency, so fats and carbs are perfectly all right. Enjoy! It is reported, in fact, that eating lots of carbohydrates immediately after strenuous exercise reduces subsequent muscle soreness.

Cereal. Grape Nuts, Raisin Bran, granola, etc. Eat them dry from the Nalgene jar, between gulps of water.

Graham crackers are good for a snack, filling, and weigh little. **Candy bars** and **Cookies:** Payday's are mostly peanuts, and chocolate is cheerful, but pack what you like – it's your crisis. Follow sugar with water.

Soda crackers, light weight, stores well, replaces lost electrolytes, and helps to pacify hunger pangs.

Tortilla chips will keep you going for a while, but match the salt with enough water.

Ritz crackers are great with **peanut butter**, which is a good energy food. All you need is a plastic spoon.

Nuts. Raisins. Dried fruit. Jerky (expensive). Go easy on the meat, animal protein requires more water to digest than vegetables do. **Bullion cubes:** a little nutrition with long shelf life and tiny weight.

Granola bars. Convenient and compact. Personally, the preservatives (BHT) in most brands give me a headache, but so does going hungry. You'll be glad to have a few, but diversify and drink plenty of water.

Fresh fruit. No reason not to grab a banana and a couple of apples on your way out the door.

Canned goods. Backpackers consider these too heavy, unless you are going to drink the liquid content as part of your water allowance. Don't forget a can opener -- you can open a can of peaches with a pocket knife, but it is very risky. One disaster at a time, please. Will you also need utensils? Many foods come in pop-top cans, **Pork'n Beans** and stew, for instance -- very convenient. Don't lick the lid, and NEVER try to extract food from a can with your tongue. Take a minute and fashion a green stick into a utensil with your pocket knife instead.

MRE's. Meals Ready to Eat. These military rations in a sealed pouch are excellent in quality and very convenient. Also somewhat expensive, at ~\$5 each. Shelf life is five years if kept cool.

Vitamins. Don't take the whole bottle. You can put a five day supply of ascorbic acid and multi-vitamins in a small pill bottle without confusion, but will you remember you have them? Scurvy takes weeks.

THE NEED FOR SANITATION & HYGIENE

'Sanitation' means keeping clean, and 'hygiene' refers to remaining disease-free – closely related concepts in Emergency Preparedness.

Tissue. It is guaranteed that in three days time you will need to go to the bathroom. It is also predictable that if you don't keep yourself really clean you are going to get chapped, then you're going to walk funny. Pocket packages of Kleenex are cheap, lightweight, and store indefinitely; you should start out with at least three. Other forms of tissue are just as good, but be sure to have tissue in some form.

You will also need the capacity to wash and dry your feet to save them from a fate worse than repugnance, wash your hands at mealtime, wash your face, brush your teeth, bathe, and shampoo. These are health issues as well as comfort issues, and justify carrying the trivial supplies. It is also well to be prepared to launder socks and underwear, which you can do under primitive conditions in various ways, if you can find water. Don't use water for anything but drinking if it looks like you may not have enough.

Towelettes. Wet wipes or other brands of individually packaged moist wipes. Very worth their weight.

Dysentery is out there, just waiting for the first chance to get inside you. Stop for lunch, clean your hands and a can lid with a towelette, open and eat from the can, use only a spoon, lick the spoon, wash the spoon and can opener with a 2nd towelette – what could be simpler? **Disposable razor**, to clean up at the motel, or shave around a wound. **Feminine** or other personal supplies, as appropriate.

Liquid soap. 2 to 4 ounces of shampoo, dishwashing detergent, or liquid hand soap. Pick one of these, transfer it to a small, reliable (leak-proof and unbreakable) dispenser, label it, and use it for all the above purposes. Second-layer it in a Ziploc bag. You may wish to experiment to make sure the liquid you have selected is really good for all uses. I used to prefer Prell in a tube, but haven't seen any lately. **Bar soap**, hotel size, works but is less versatile, and needs a travel container of some sort. Foil?

Wash cloth. Small towel. Black will dry fastest in the sun. Sponge baths will be welcome if the real thing isn't available. A small cloth can be used as a bandage, a hot pan holder, a signal flag, to strain water, or to

collect dew from grass before dawn. A **comb** is low priority, but small, and you might want to clean up. A comb is also useful for flicking branches of cholla (“jumping”) cactus from your clothing.

Toothbrush. Toothpaste. Floss. You can chew on a piece of string for a certain amount of cleaning, and use salt water instead of toothpaste to brush with. Instead of using the next tube of toothpaste completely up, leave a little and put it in your Kit. Or, for a price, drugstores sell travel-size or sample-size tubes.

Latex gloves. For handling anything contaminated. Elastic material has other expedient uses.

Mirror, small. For removing foreign object from eye, signaling, cleaning up, or looking into crevices.

THE NEED TO MAKE FIRE.

The association of fire with survival is proverbial. It takes so little preparation to make fire that there is no reason to ever be without it. Whether keeping warm, cooking food, boiling water to disinfect it, keeping predators away, or drying clothes, fire is an important resource. It is also dangerous, and few of us are familiar enough with the use of campfires to have a complete set of safety habits, so be careful. Be sure you need to make a fire before you go to the trouble and take the risk.

Matches, “strike anywhere” in a water-proof container; ten should be sufficient, so take twenty. Water-proof some by dipping them in melted paraffin or painting with clear fingernail polish, and add a couple of birthday candles as fire starters. Commercial “waterproof matches” ignite well, but are relatively expensive, small (awkward), and may require striking on the box—a real disadvantage. If you keep them in a proper container, ordinary large kitchen matches will do fine. Some writers recommend **lighters**, but I’ll leave that to your experience. Matches weigh less, and have no liquid to leak out. 1 lighter \cong 70 ignitions.

Skill in the expedient ways to make fire is worth the time to learn: flint-and-steel; friction; battery and steel wool, focusing sunlight. All of these are more difficult and cumbersome than a match, so if you wish to have a backup, put a second waterproof matchbox in a separate place in your Kit. Even a dry match won’t do you any good in a damp wilderness if you aren’t also skilled at preparing the kindling and firewood for a sure-starting fire, so read and practice.

It is infeasible to carry enough fuel to keep warm with, but there are some effective alcohol, white gas, and solid fuel **stoves** for cooking which are small enough for backpacking, if you choose to add that capability. Paraffin can be used to cook with, but it is not particularly efficient and is sooty. Propane burns hot and fast, but the canisters are heavy.

Handwarmers are often recommended for 72 Hour Kits (generally by salesmen), but I remain skeptical. A friend showed me one once, and it was nice and warm, but I didn’t like the smell. They last only for a few hours, they are heavy, and expensive. You can take more fuel for them, but is that complication worth it? It warms only locally, not your whole body. The alternative is better gloves or mittens, which last indefinitely. If you have positive experience with them, go for it; but don’t factor them into your plans until you have that experience. Remember the lion hunter screaming at his partner, “What!? You went into battle with a weapon you had not proven!?” This is a sound principle.

THE NEED FOR MEDICINE

First Aid Kit. Band-aids, **tweezers**, aspirin, Ibuprofen, anti-diarrhea (tablets), sore throat lozenges, anti-biotic ointment, needle, single-edged razor blade, chap stick or lip balm, anti-histamine, sunscreen, burn ointment or Aloe Vera (very effective in soothing sunburn, but heavy. Better to dress well and stay unburned), **Moleskin** for blisters. You can protect blisters on you feet from getting worse with a Band-aid, but Moleskin is more durable and effective. Also more expensive, but your feet are worth the best care.

Snake Bite Kit. For too close encounter with rattlesnake. **Consecrated oil.**

Insect Repellent. If you expect to need it, and can find it suitably packaged. Ingredient DEET is the best.

Potassium Iodide. For preventing the thyroid from taking up radioactive iodine from a nuclear event.

THE NEED FOR MONEY

In some scenarios you will be able to solve problems by ‘throwing money at them.’ For this eventuality you should have **cash**, **checks**, and a **credit card** in your Kit. If you empty your pockets each evening into your Kit, instead of on top of the dresser, then what you normally carry in your pockets will suffice. Otherwise, a

second stash of money needs to be in the Kit. How much cash is up to you, but enough to stay in a hotel and eat at restaurants for three days is reasonable. Take at least enough **Change** for a pay phone.

THE NEED TO CARRY EVERYTHING

Duffle bag. Especially with a shoulder strap. The main problem with anything besides a backpack is by the time you have enough stuff to sustain yourself, your arm is going to drop off from carrying it, and you are at risk of straining your back from the sideways load.

Backpack. This is the ideal. See handout on “Backpacks.” Not only can you carry the most stuff this way, you have both hands free, to use helping children or holding a flashlight, or a walking stick (which helps with balance and safety), wielding a machete if it is brushy, or carrying something else – a rifle, maybe (or somebody else’s duffle bag, because their arm is dropping off.)

Plastic bucket. Start with this, until you get your backpack. They’re cheap, have a handle, are rainproof and bug proof, and if you don’t weigh too much you can sit on it to rest. Confined to a fallout shelter you can use it for a toilet, or in camp you can carry water or gather food or firewood. A bucket or large-mouthed gallon bottle can be used to do laundry in (got soap?) then rinsed out and reloaded to continue down the trail.

Suitcase. Cardboard box. If you have no container you have no Kit. If you have any carry-able container you have a Kit, and it remains to collect into it the things that will sustain life. Start today with what you have -- begin. Upgrade tomorrow from box to bag, from bag to pack, from pack to a better pack, as you grow in sophistication. Even with just some water bottles in a box, when the evacuation is called you can throw your shoes and socks in it, run to the kitchen and grab a box of cereal, lay your coat over the box and dash out the door with it. Too many people have passively watched danger approach, and then left in a panic with NOTHING.

Pillowcase. An improvised container, shaped like a big pocket. It’s a bag; it will hold stuff; you can carry it, and you will have it with you in the middle of the night; therefore it qualifies.

SPECIAL NEEDS FOR CHILDREN

Carrier or Stroller, Diapers, formula, medications, sunscreen, Wet Wipes, sterile bottles, thermometer . . . whatever you normally use, packaged for travel, and enough for at least three days.

Favorite doll. If Raggedy Ann sleeps with the child or in the child’s Kit, she won’t be left behind. (As an example of sometimes bizarre things written on 72 Hours Kits, one author suggested you take your child’s favorite doll away from her and put it in your kit so someday you can give it to her during an emergency.)

Adults get bored too, and in some evacuations find themselves with a lot of time on their hands. For the hours you cannot make productive, you may wish to have a **book** or **game**. Paperbacks, even the B of M, are cheap enough to cut apart, keeping one section at a time in your purse or Kit.

TOOLS & SUPPLIES– THE NEED TO REPAIR, CONSTRUCT, MODIFY, ACQUIRE, IMPROVISE.

Be very reluctant to take a tool if it is at all vague when or for what you will use it. Nevertheless, the following items are particularly versatile and useful, and deserve consideration.

Pocket knife. See write-up on “Uses of the Pocket Knife.” Locking folding knives are excellent too.

Hunting knife. Heavy, but useful for some chores. **AVOID KNIVES WITH SERRATED EDGES** (except for cutting bread at home.) A simple straight edge cuts best, and is easier to maintain.

Whetstone. A small one weighs little, and enables you to keep your knife sharp if you are using it a lot.

Leatherman™ or similar **multi-purpose tool.** American brands are higher quality.

Rope, cord or string. 6’, & 50’ of parachute cord is good, or 100’ of heavy string will also pitch a tent.

Vinyl electrical tape is better than **duct tape** for some repairs. Don’t take the whole roll; make your own small roll from a few inches of it. **Rubber bands. Safety pins. 5-minute Epoxy. Wire. Shoelaces.**

Webbing. Nylon webbing is very strong and better than rope for some purposes, because it distributes the force over a larger area (less painful). A coil 20’ or longer is meaningful. Comes in bright colors. One or two **Carabiners** may also prove useful if you have to do any climbing or descending. (With 35’ one can make an escape ladder, for instance, for a second story window. Best done before the fire starts.)

Aluminum foil. There are some uses in addition to cooking & shielding a fire from wind.

Pliers. Lots of useful articles can be fashioned from wire and sheet metal. Helpful in pushing a needle through Nylon straps or leather. Get a small pair with side cutters.

Duct Tape. Don't take a whole roll. Make your own small roll out of a few inches of it.

Fishhooks and line. A traditional survival item; don't know if you will need these here in the desert, but at least they weigh very little. You can put an entire fishing kit in a 35mm film canister. Monofilament can be used to make small-animal snares.

Sewing needles. And nylon upholstery thread. Single-edged **razor blades.** **Tweezers.** The simplest way to make a **sewing kit** is to add a needle to a box of **dental floss.** When you have finished a stitch, tie a knot and fuse the ends with a match. Store-bought travel sewing kits have nice colors, but the case is brittle, the thread is light cotton and the needles are too small. Upgrade it or make your own. Pick a color and leave the others out. You can re-sew it pretty when you get home.

Machete. Hatchet. Axe. Collecting firewood, opening cactus, harvesting prickly pear pads or fruit, pounding tent stakes, cutting tent poles or other camp furniture.

Leather work gloves. Protection from blisters, scorpions, splinters, thorns (e.g. catclaw), and sunburn. In extreme weather a small outdoor **thermometer** may have survival value.

EMT Shears. Scissors. Useful for fashioning materials, repairs, removing clothing from trauma victim.

Shovel. For clearing a campsite, digging a latrine, etc. Heavy as a walking stick, but one per group is worth having. See write-up on "Uses of the Shovel." **Leggings.** (protection from cold, snakes, and brush).

Hacksaw blade. Just one 12" blade, not the whole saw. **Jeweler's,** or 6" mill **File,** for sharpening or blunting edges.

Dust mask. Helpful during earthquake, volcanic eruption (ash fall), building collapses, range fires, windstorms, clean-up operations.

Mosquito netting helps when sleeping out. Or bee bonnet. (This may be a bad year for Africanized bees.)

Gun. Many types have their advocates. One of the best survival weapons is the .22 caliber rifle, primarily because the ammunition is so small and lightweight; you can afford to carry a lot of it. A well-placed shot will bring down a deer, but you can shoot a dove and still have something left to eat. You will need a holster for a handgun, and a sling for carrying a rifle or shotgun, so you keep your hands free. Add to this the supplies needed to keep it oiled and clean.

Guns are not allowed in LDS meetinghouses (a recently announced policy), public emergency shelters or government buildings, and they are quite heavy, so they may be an accessory to a 72 Hour Kit, but are not a basic part of it. Having one may be warranted in a given circumstance, but generally it complicates the social aspects of an evacuation.

Cup. Eating utensils – stainless or plastic. **Paper plates.**

Plastic bags. Light and cheap, various types and sizes, from leaf bags down to **Ziplocs,** have various uses.

Summary

Your 72 Hour Kit is the cornerstone of your emergency preparations, your ark, the irreducible central vessel of your contingency planning, fully provisioning your comfort, safety and mobility in all modes of response to any crisis. It is the elite of your tools, the cream of your supplies, the condensation of whatever life-sustaining and empowering substances your skill and knowledge can assemble. It is leanly that and nothing more, so composed and sufficiently limited as to maximize the likelihood it will, without fail, go with you when you are pushed out, never taxing your ability or willingness to carry it. Because it has some flexibility, and is primarily designed to sustain your unchanging daily requirements, it is not invalidated by the impossibility of anticipating the particular hardship that calls it forth.

That characterization governs what you put in it, and what you put it in. Regardless of your other options, the 72 hr. kit must be something you **can carry,** traveling **on foot,** on **short notice,** in an **evacuation,** from which you may or may not return. It must **meet all your physical needs** for at least three days, then continue to have value indefinitely, without hindering you from traveling by any method of transportation, regardless of season, weather, darkness or help. It has enough of what you need most, no naive deficiencies, and precious little that proves useless in the end.