

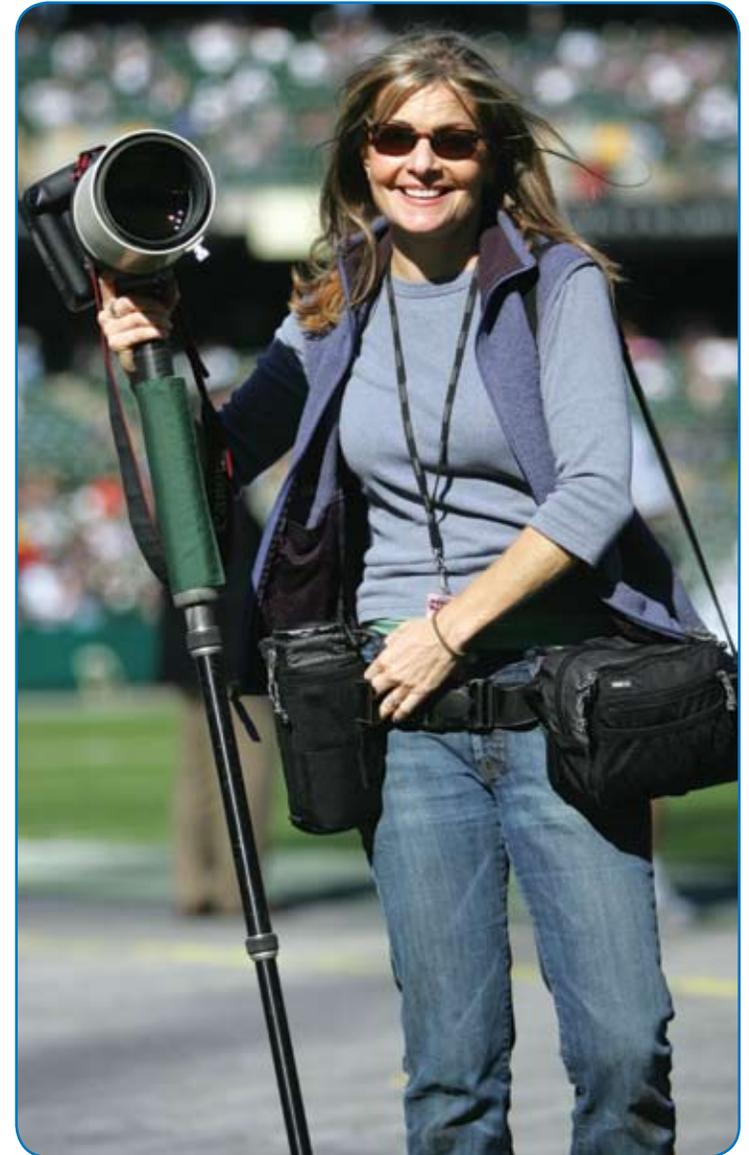
How Modular Belt Systems Can Alleviate Bodily Aches and Pains

By Doug Murdoch

As a product designer for over 15 years specializing in bags, cases, and backpacks for photography equipment, I receive e-mails regularly from photographers looking for insights and products that will help alleviate various bodily pains caused by carrying heavy gear for long periods of time. It is acknowledged in the industry that one of the physical byproducts of being a photographer, especially one who must carry lots of heavy gear, is damage to the back and other parts of the body. As someone whose life's work is focused on solving camera bag design problems, and who has interacted with thousands and thousands of photographers, certain truths have emerged.

The purpose of this paper is to discuss the issue of repetitive stress as one of the main causes of pain and how properly designed and utilized modular belt systems have the potential to alleviate some of those effects.¹

¹ This paper is not intended to provide medical advice. It is advised that you seek input and advice from medical professionals.



Deanne Fitzmaurice, co-founder of Think Tank Photo and 2005 Pulitzer Prize Winner. Photo: Jeff Chui

The Main Causes of Bodily Aches and Pains

Any type of motion that you do over and over again in the same position for long hours can cause aches and pains or even an injury. For photographers, after a long day in the field this can range from a mild amount of discomfort in the shoulders, neck, or back, to something more serious like an actual injury. This is compounded by days, weeks, and years of lugging heavy camera equipment, often at awkward angles. Carrying too much photo equipment can become an occupational hazard. Some examples:



Photojournalist Anacleto Rapping works at the 77th Annual Academy Awards, Sunday, February 27, 2005.
Photographer: Al Seib, February 27, 2005

Photographic shoulder bags: Day in and day out, wearing a shoulder bag on the same side of your body, causes the weight to be supported by one shoulder alone. This forces your muscles to compensate for the unequal amount of weight being carried.

Computer cases: Given that laptops alone can weigh 6 to 10 pounds by themselves, a filled computer case can weigh 15 pounds or more. Although computer cases are convenient, they can wreck havoc on your shoulders and back if you have to carry them for hours at a time.

“Sling” bags: Bags supported by only one shoulder are, in some ways, worse than traditional shoulder bags because you cannot switch them to the opposite shoulder to relieve stress.

Hanging a SLR on your neck: This is an obvious cause of pain and long term neck problems. It is for this reason that many photographers choose to wear their SLRs only on their shoulders.

Hanging a SLR on your shoulder: Although hanging an SLR on a shoulder is considered to be better than on a person’s neck, you still carry the weight on one side of your body, forcing your back and shoulder muscles to be in a constant state of imbalance to keep the shoulder strap from falling off.

Repetitive strain injuries: For most photographers a few days of rest usually help when they experience aches and pains. But serious injuries can occur over long periods of time, as many old timers in the photo business attest. This condition falls into the category of “repetitive strain injury,” which is defined as “Damage to tendons, nerves, and other soft tissues caused by the repeated performance of a limited number of physical movements and characterized by numbness, pain, and a wasting and weakening of muscle.”

Source: The American Heritage® Stedman’s Medical Dictionary, 2nd Edition
Copyright © 2004 by Houghton Mifflin Company. Published by Houghton Mifflin Company. All rights reserved.



Bob Libby shooting at the Independent Women’s Football League game in Tacoma, WA.
Photo: Lenny Gotter, June 4th, 2005.

Why a Modular Belt System?

Although Modular belt systems are not a panacea for all bodily aches and pains, taking the least amount of gear needed and supporting that weight on your hips can help tremendously.

Modular belt systems have advantages over traditional carrying solutions, such as shoulder bags or sling bags:

- 1. Weight distribution:** Put it on your hips. The most supportive part of your body is your hips as the underlying skeletal structure can support great weight without transferring huge amounts of stress to your shoulders.
- 2. Modular:** Pick and Choose exactly what you need. The essence of a modular system is the ability to choose exactly what bags you need for a particular shoot – and no more. Because each piece of equipment (e.g. lens, flash, etc) is already in its own bag, you just need to choose which equipment and bag are appropriate for your current photographic challenge. You don't need to take everything.
- 3. Faster Access to Gear:** Sometimes we forget that photography is about taking pictures and if our gear is in our backpack or shoulder bag, it is difficult to get out quickly. Having your SLR on your shoulder with your lenses and other accessories on a modular belt system is faster.
- 4. Reduce Bulk:** Removing a SLR body and one lens out of a traditional shoulder bag creates lots of empty space that you have to lug



John G. Mabanglo of the European Pressphoto Agency covering water-polo at the 2005 Final Championships in Montreal, Canada Tuesday, 26 July 2005.

around. Since you only need to take what you need with a modular system, the total amount of bulk is significantly reduced.

5. Go Really Light: There are times when you simply don't need much gear – a SLR with lens attached and one extra lens. This is the beauty of a modular system: you can reduce bulk to an absolute minimum. Or, better yet, you can attach the bag to your regular pants belt and only take only what you need.

6. "Working" solution vs. Transportation and Storage: There is a distinct difference between what bags you use to transport and store your gear and your "working" carrying solution (what bags you use when you are actually shooting). You can use a backpack or shoulder bag to transport all of your gear from one location to the next. Once on location, you can convert to your "working" solution, like a modular system. Because you carry your SLRs on one or both shoulders and your remaining lenses and other accessories on your belt, the amount of bulk you're carrying while actually photographing is dramatically reduced. You are no longer lugging a bulky or unnecessary backpack or shoulder bag.

7. More Support if Needed: Most Modular systems also provide a shoulder harness option, which takes some of the stress off of your hips and distributes it equally on both shoulders.



Rhona Wise shooting tennis in Florida. March 26th, 2005
Photo: Yesikka Vivancos



Freelance photographer Juliann Tallino stands 12 stories up on the roof of a new lowrise being built in Century City, CA to document large steel bridge trusses being installed on the roof of the building. Photographer: Bill Soderberg/ July 30th, 2005

The NEW School of Thought on Modular Belt Systems – Sliding the bags on the Belt

The key to carrying heavy gear comfortably and alleviating bodily pains is the ability to slide the bags on the belt easily, thus shifting the position of the weight on your body. For example, if you begin to feel muscle or skeletal stress caused by bearing the weight of your 70-200 2.8 lens on your body, you can shift it to another location before you experience pain and do damage. Your belt and body will feel completely different.

Summary of the NEW School of thought:

- 1. The bags should be able to rotate or slide on the belt.** This alleviates immediate discomfort by allowing you to shift the location of bags on your belt periodically. This single capability is the greatest contributor to your comfort.
- 2. Modular components should be easily removable and replaceable.** The bags should be easily attachable and reattachable, (which really is the hallmark of a “modular” system) so you can take only what you need for that particular shoot. Not only does this allow you to go as light as possible, it allows you to configure your gear in the ways you like to shoot.
- 3. Accessibility to Gear.** Sliding the bags on the belt is immensely helpful during shooting because you can rotate the right bag to the front for easier access to your gear. This increases accessibility to your gear.

4. Kneeling down. With a modular system the position of the bags can be changed so that it is easier to access the right gear and shoot. For example, when kneeling down the bags can be pushed to the back of your body so there is no conflict between your thighs and the bags.

5. Walking through crowds. Since the bags slide on the belt, they can be moved to the front and back of your body, so there are no bags on the side of your body that can bump people as you navigate through a crowd.

6. The belt does not have to be as wide or as thick. Since it is the ability to rotate the bags that contributes most to long-term comfort, the belt does not have to be extremely heavy or as heavily padded.

Modular Systems

Among photographers there is growing concern about the health of their shoulders and back.

Modular belt systems allow you to carry only what you need, which means that you can carry less weight.

The ability to “rotate” or slide the bags along the belt prevents fatigue by allowing you to shift weight to other parts of your body when needed. If one area of the belt becomes uncomfortable, the ability to slide the bag along the belt shifts the weight to another area that can support it without pain.

Note: The only company that currently sells a Modular system that allows the modular components to slide on the belt is Think Tank Photo.



Photographer Donald Miracle of Getty Images, in cowboy gear and a Pro Modulus Speed Set, puts the finishing touches on a camera that was buried and covered with bulletproof glass at the 54th Annual Woodlake Lions Rodeo. Photo: Juan Villa

All of the Modular belt systems currently being sold by Tamrac, Kinesis, Lowepro, Lightware, and Domke were designed before the year 2000. Photography has changed significantly since then, but for some reason the bags have not.

In the past, it was believed that the belt itself was supposed to be big and supportive—like a weightlifting belt—and that the bags on the belt had to be fixed in the same position. (A good explanation of this now antiquated approach can be found at <http://www.sportsshooter.com/news/429>)

The problem with this old way of thinking is:

1. Since all of the bags and the heavy equipment in them are fixed in one position on the belt at all times and cannot be easily moved, it puts constant stress on your body in those isolated areas for the entire length of time you wear the belt. Wearing a heavier belt does not deal with the sources of damage being caused by these stressors.

2. These belts are so large that they can cause photographers to sweat profusely, adding to their discomfort.

Large belts do not necessarily mean greater comfort over a long period of time. All of these systems “lock” the bags into one position. It is ironic that while photography has changed a tremendously since then, for some reason the modular belt systems have not.

Modular Belt Systems Compared to Shoulder Bags

Heavy shoulder bags are a huge burden, whether it's a camera bag or a massive computer case. During the day, even if you switch the bag back and forth from one shoulder to the other or wear the shoulder strap across your chest, it may still cause muscle fatigue. With shoulder bags, once you take your SLR and one lens out, the bag itself is 25% to 50% empty. That's still a lot of extra bulk to bear while you're trying to take pictures. Modular belt systems allow you to shift the weight of the equipment remaining

on your belt so that you can maintain comfort while having both hands free to take pictures.

Modular Belt Systems Compared to Belt Packs

In general belt packs are better than a traditional shoulder bag in terms of comfort and long-term health because they allow the weight to be borne by the hips, with a shoulder strap used for additional support. Belt packs share the same problem as shoulder bags, though, that once you take your camera and lens out of the bag it is 30% to 50% empty. This is why many photographers use a small belt pack to change lenses and other accessories, but not to carry their SLRs with a lens attached. This significantly reduces the size of the belt pack and makes it more manageable. With Think Tank Photo, we've designed our belt packs to be part of an overall modular solution, allowing the weight of the belt pack to be rotated. See: http://thinktankphoto.com/ttp_product_SpdDmn.php

Modular Belt Systems Compared to Backpacks

The healthiest way to carry lots of weight from one location to the next is with backpacks that support the weight with two shoulder straps and a waistbelt. The problem is that under most circumstances photographers cannot actively shoot as all of their gear is inaccessible in the backpack. This is why many photographers remove all or most of the dividers from their traditional photo backpacks, filling the space with their modular components. Instead of the backpack being used as a bag for shooting in the field, it is used to transport and store the modular belt system. (For advice on transporting your gear safely through airports, see our article at www.thinktankphoto.com/airport)

Modular Belt Systems Compared to Rollers

Rollers take a huge amount of weight off of your back, but have their own burdens. It can be challenging pulling them up long

flights of stairs or dragging them through rocks and snow. As with backpacks, many photographers are using rollers as transportation devices for their modulus components, computers, and other gear. This way when they get on location they simply don their pre-packed Modular system and begin shooting, with all of the health benefits accrued from using the roller and the Modular system as an integrated system.

Think Tank Photo and the Modulus Speed System

As there are so many reasons why it is in your best interests to go with a modular system, we suggest you check out the “Why Modular” section of Think Tank Photo’s website at:

http://thinktankphoto.com/ttp_Why_Modular.php

You should also check out how many leading photographers are actually configuring their belt systems:

http://thinktankphoto.com/ttp_Mod_ProMod_Configs.php

Concluding Thoughts

Bodily aches and pains are commonly caused by repetitive activities. With photographers, this means wearing your equipment on the same parts of your body over and over again, causing your body to compensate for the weight and potentially causing both short- and long-term health problems.

The benefit of the NEW school of thought concerning Modular belt systems is that the weight of the bags and equipment on the belt can be shifted at any time to another area on the body to alleviate stress or pain in any one area. This is the greatest single health benefit of any modular system that allows you to rotate your gear.

About the Author Doug Murdoch— Designer/President of Think Tank Photo

Doug Murdoch most recently served as Vice President of Design and Production for Lowepro USA. Previously, Murdoch was a part owner with Daymen Photo Marketing (the owner of Lowepro) of Fluxion, Inc. Fluxion was responsible for Lowepro’s product designs from 1992-2001, where Murdoch was considered to be the lead designer. Doug’s current passion is inventing new carrying solutions for professional photographers. With degrees in Industrial Design and Philosophy, Doug focuses his efforts on the needs of photographers.



Mission Statement of Think Tank Photo

“We are a group of designers and professional photographers focused on studying how photographers work, and developing inventive new carrying solutions to meet their needs. By focusing on ‘speed’ and ‘accessibility,’ we prepare photographers to Be Ready ‘Before the Moment,’ allowing them to capture those historic moments that reflect their personal visions and artistic talents.”

For some companies, it is only about the product. For us, it is more: It is about supporting photographer’s doing their job. If we can design products that help photographers travel easier, take pictures faster, and organize their gear more efficiently, then we will have accomplished something beyond the bags themselves.”