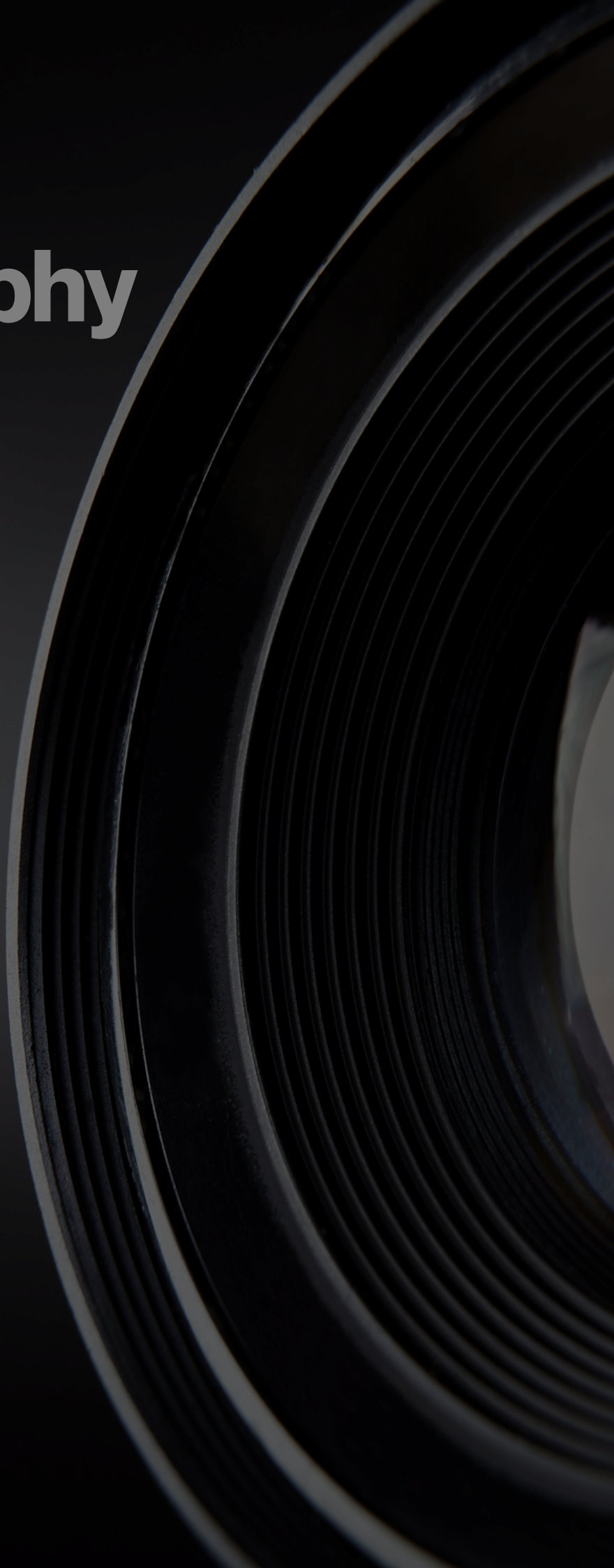
Photography With Reduced Physical Dexterity



Edwin Joe | N11089237
A01 Research Report
DNB311 Studio 7: Capstone
Word Count: 4,055

Executive Summary

According to the Australian Institute of Health and Welfare, 18% of Australians live with a disability, with one in five of those people having reported difficulty gripping or holding things. Physical disability is roughly three-quarters of that total, and the most common reported cause is arthritis, especially affecting women more than men at every age.

This report examines what happens to photography when people face these problems and their hands become unreliable. The standard operation of a mirrorless camera includes weight bearing, static holding, and repeated fine-motor movements with the arms often held away from the body. Through extensive research it was found that there is a very small amount of ergonomics literature that exists within the photography industry and it tends to focus on editing posture rather than capture.

A common theme among the desktop research is that unsupported arm elevation fatigues rapidly, low loads still fatigue when held long enough. Older adults lose grip force faster across a session, fatiguing one arm raises tremors in the other and standing makes it much worse for the user. Against Rohmert's threshold of 15% of maximum voluntary strength, a standard camera demands much more than a standard user can withstand.

Twenty existing products were scored against the ten criteria and grouped by where in the load path each of them lie. The three products which are specifically designed and developed for hand impairment returned the three lowest scores. The highest was a 15 g thumb rest with an observation of only products removing load from the hand entirely achieving endurance and full photographic control at once, each needing a tripod, harness or rig.

The primary research included an anonymous survey of twenty-three photographers and five semi-structured interviews with camera handling observations throughout. The understanding from this primary research was that photograph quality begins to decrease before fatigue is felt. Fatigue rarely ends a session, however it causes the user to begin using one arm for weight bearing. When offered an identical accessory that is $150 cheaper in a form that looks like a medical aid, thirteen of twenty-three pay the premium to avoid it.

Together, these results disqualify the support the benchmark identifies as the strongest mechanism. A device that is reached for when tired is reached for after the cost is paid. The implication is support worn rather than deployed and the ability to change which side of the body carries the load without interrupting the shot is a key focus. Ultimately, for a photographer, a visible aid changes the expression on the subject's face as well and that is evident in the photography.

Authenticity Statement
This is to certify that to the best of my knowledge, the content of this report is my own work. This report has not been submitted for any subject or for other purposes. I certify that the intellectual content of this report is the product of my own work and that all the assistance received in preparing this report and sources have been acknowledged.

Name: Edwin Joe
Student number: n11089237
Date: 11/09/2026

AI Use Statement
I have utilised Claude and ChatGPT to assist in various ways. The way I have used AI includes:

- Assisting with visualisation of my own survey data, interview transcripts, and the product benchmarking matrix I scored manually. Claude did not generate or alter any underlying data, only its visual presentation.
- Structural and clarity feedback.
- Assessing my drafts against the CRA.
- Editing support and general proofreading suggestions on my own drafted text.

Name: Edwin Joe
Student number: n11089237
Date: 11/09/2026

Table of Contents

1.0 Introduction 01
2.0 Background 02
3.0 Benchmarking 03
4.0 Research 05
5.0 Analysis & Findings 07
6.0 Discussion 11
7.0 Design Implications 12
8.0 Conclusion 13
8.0 References 14
8.0 Appendices 16

1.0 Introduction

Photography is not usually described as physical work by the general population. However, raising a camera to the eye, holding it still and pressing a two-stage shutter button is a demanding task when repeated. It is quite a significant effort of weight bearing from the shoulder and arm with precise fine motor movements to adjust the camera settings. These are all movements and abilities which decline with age and also other physical disabilities such as arthritis, tremors and Parkinson's disease.

In Australia, 4.4 million people, or 18% of the population live with a disability. The prevalence curve stays quite low until roughly the age of 50, it then increases quite significantly, approaching 80% beyond age 85 (Australian Institute of Health and Welfare [AIHW], 2024). Approximately one in five people with disability report difficulty gripping or holding things. Around the age of 55, photographers tend to remain actively engaged in travel, shooting and investing in equipment.

This project is guided by one main research question. How does declining hand function affect the physical operation of a camera for photographers and what does that imply for the design? It is descriptive rather than explanatory because it has not been documented at all (Marshall & Rossman, 1989).

The aim of this report is to understand how declining hand function affects the physical operation of a camera and to identify design opportunities that allow people with reduced dexterity to continue shooting on their own terms. Within this aim there are three objectives to be achieved. The first one is to establish which camera actions fail and when, evaluate how well existing products meet those demands and identify the endurance and set-up requirements a realistic product must satisfy. Figure 1 sets out the general structure of the project.

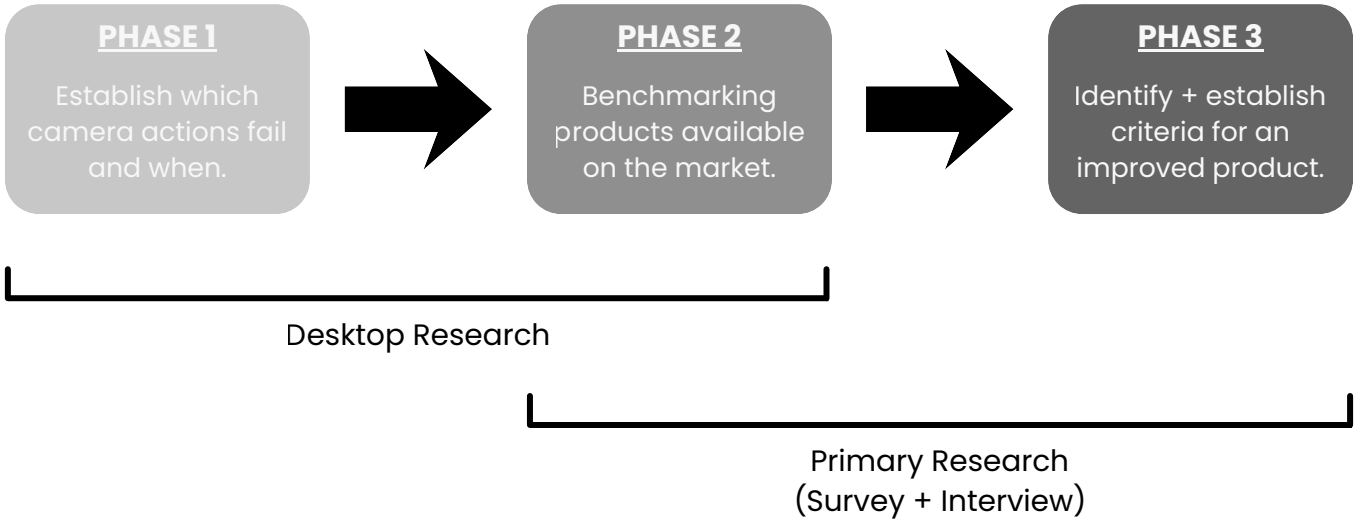


Figure 1: Project research structure

2.0 Background

Physical disability accounts for roughly 77% of all disabilities in Australia, which is why dexterity is the right lens here (AIHW, 2024). Arthritis is the most commonly reported physical disabling condition and affects women more than men at every age. Tremor is the more visible problem but the smaller one, with essential tremor affecting around 4.6% of people over 65 (StatPearls, 2024). Looking at it from a statistic point of view, an older photographer with stiff arthritis hands is likely the user.

Two features of the curve matter much more for the design than the main number. It has no specific threshold meaning that capability begins to decline gradually from middle age. There is no moment in which a photographer becomes a different kind of user needing a different set of gear. It also includes a population that is already in the market and currently owns bodies, lenses and is progressively less able to use them.

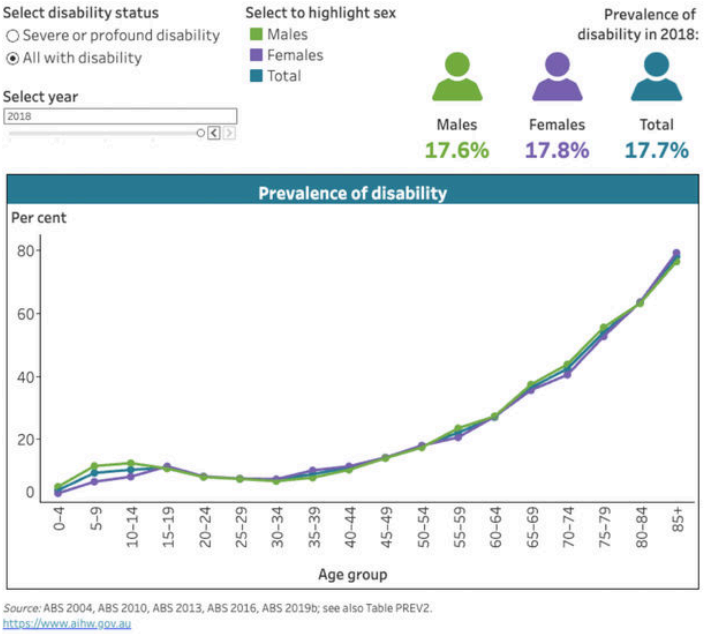
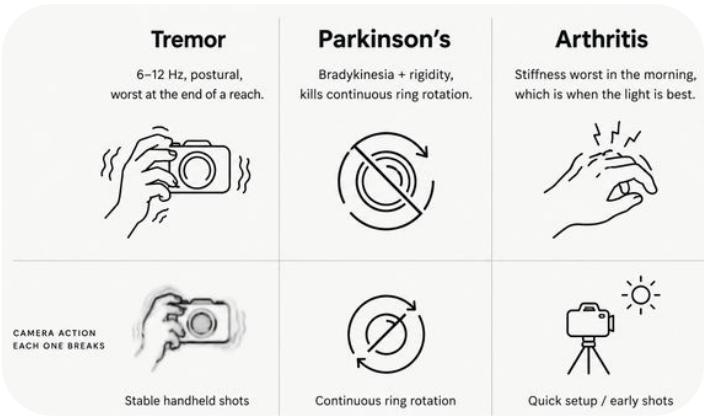


Figure 2: Prevalence of disability by age in Australia.

The population does not have a shared single condition and there are many differences, especially at the scale of a hand on a camera. Essential tremors are postural, meaning that it occurs at 6-12 Hz depending on the positioning of the body. It typically intensifies at the end of a goal focused movement such as precisely placing a finger on the shutter button and clicking it (StatPearls, 2024). In terms of Parkinson's disease, Bradykinesia and Rigidity are the two main characteristics which reduce an individual's movements significantly. This makes it almost impossible to continuously operate the zooming or focusing rings on a lens (Parkinson's UK, 2024). Arthritis becomes a significant challenge with stiffness being at its worst in the morning and after rest (InformedHealth, 2020) which is also when the best natural lighting is.



Against these failure modes there is a physical demand that has not yet been measured. The standard operation of a camera has been studied but only with people whose hands work perfectly fine. Surveys of professional camera operators against office workers established that there is a lot more load on the upper limbs than desk work (Annals of Occupational and Environmental Medicine, 2018). The one academic treatment of photography ergonomics names the shutter button as a strain contributor before turning to editing posture (IIP Series, 2024).

When looking at these two pre-existing publications, this makes universal design a functional requirement rather than an ethical preference. The population does not self-identify, one mechanism serves three divergent conditions, and the demand is continuous rather than categorical. What no source does is meet in the middle. None observes a person with reduced hand function operating a camera, and none tests whether the difficulties that population reports are shared more widely. That absence is the gap this project addresses.

3.0 Benchmarking

Twenty products in the Design Development Record were scored one to five against ten criteria which was directly drawn from background research. The criteria included: fatigue reduction, tremor control, grip demand, photographic capability, one-handed operability, affordability, social status, setup speed, Australian availability and learning curve. Scores were unweighted so that the score value is equal amongst all of the categories. The products were pooled into different areas, this included: on the body, on the coupling between hand and camera, on the grip geometry, on the controls, on the camera itself and outside the body entirely. This meant that all the products were then labelled by six strategies rather than twenty different products. The first four strategies reduced the difficulty of holding a camera for prolonged periods, and only the last two changed how long it could be held (Figure 4).

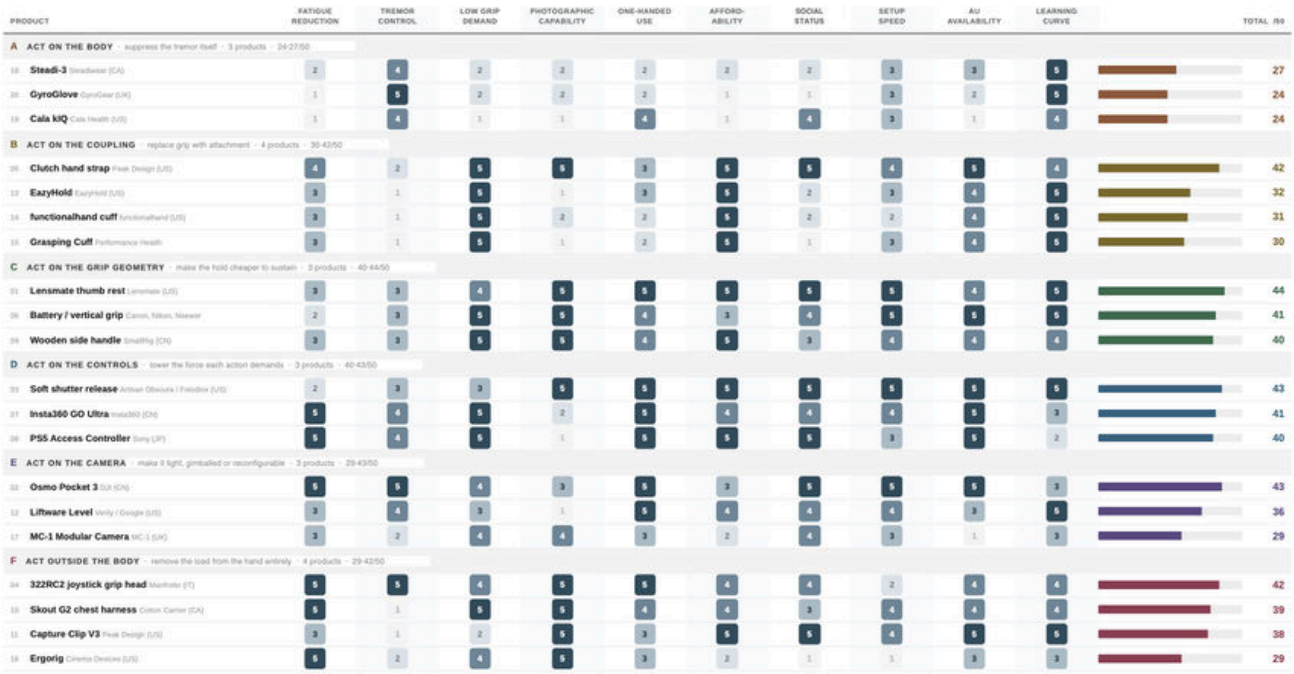


Figure 4: Benchmarking 20 products.



The first pattern which was recognised was completely the opposite of what was directly thought. The three products that were purpose built for hand impairment, GyroGlove, Cala klQ and Steadi-3 was the three lowest scoring totals at 24, 24 and 27. The highest belongs to a 15 gram, $78 AUD thumb rest at 44 (Lensmate, 2018). The second highest scoring product was a $33 AUD soft shutter release at 43 (Artisan Obscura, 2019). When it comes to photography, a camera shop outperforms a medical catalogue on a rubric written from disability research. The purpose-built products tend to lose on the high cost, social status, setup speed and availability. They are specifically designed for everyday tasks however they tend to lose when used for photography. Another product that was compared which has an interesting interface is the PlayStation Access controller being scored at 40 (Sony Interactive Entertainment, 2023). It is a configurable accessibility product at mainstream price with no medical framing. This type of product is definitely one that inspiration is drawn from for the accessibility component of the design.

A second pattern amongst the twenty products separates comfort from endurance and the six strategies show it in their shape (Figure 5). The three middle groups make holding a camera easier without extending how long it can be held and none of them score above 4 on the fatigue reduction section, only the comfort part is solved. Although there is adequate support, the deployment is the unsolved part. Three of the four products outside the body score full points in the fatigue reduction and photographic capability at once and one, two and four on setup speed. The Manfrotto 322RC2 delivers everything the design needs, however it needs a tripod first which isn't ideal for a photographer walking around an event with a camera (Manfrotto, 2020). The ErgoRig solves the problem of being a stationary product for an additional 1.5 kg of equipment carried and a big cost of $1800 (Cinema Devices, 2019).

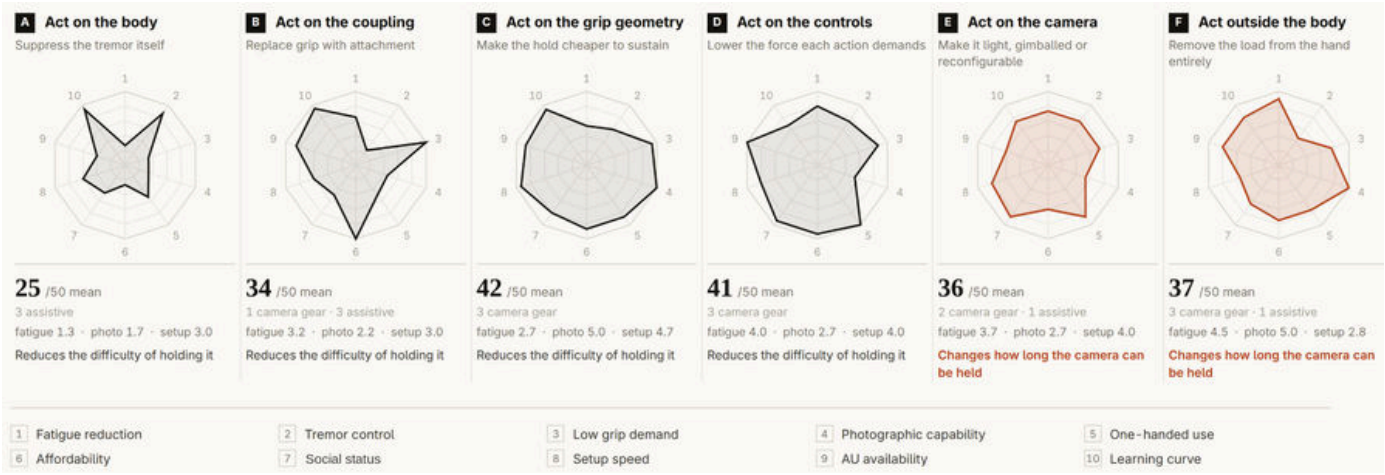


Figure 5: Radar graphs of the average scores in each strategy.

A third pattern that was identified runs across the top of the table. Each high-scoring accessory attaches through an interface most cameras already have. This is through the hot shoe mount, the threaded cable release, the quarter-inch socket or a cage ecosystem. The lowest scores tend to be products that are worn on the person or is an alteration on the camera itself. Fitting the existing ecosystem is not a convenience thing but rather something that must be focused on in the final design criteria.

4.0 Research

Two methods were used to do primary research, an anonymous online survey and a semi-structured interview incorporating camera-handling observation. The study was mixed rather than purely qualitative, making sure that the surveys measured the variables with numbers and the interviews build a holistic picture with words and images (Creswell, 2013). Both of these were run as a triangulation, making sure to cross verify anything that arises in either through more than one method so that no result sits on a single method. The survey established distribution, how common each difficulty is, when it appears and what people tend to trade off when fatigue kicks in. The interviews establish mechanism, looking at what happens to a hand on a camera, in what order and why (Figure 6). The timeline of the primary research is set out in Figure 7.

Survey

- Included 27 items
- Distributed through Facebook groups, Reddit and Instagram.
- Hand conditions were asked by function and not diagnosis so that people who haven't been formally diagnosed take part.

Interviews

P1)Dave	P2)Ed	P3)Roy	P4)Jaidyn	P5)Kalem
Student events photographer. 4yrs experience. Advanced gear	Professional cinematographer. Mid 40s. 25yrs experience. Full cine rig.	Short-form content creator. 3 years' experience. Beginner gear	Hobbyist. Radial nerve palsy. 5yrs of experience shooting events.	Professional event photographer. 10 years' experience. Painful wrist (strain)

Figure 6: Survey and Interview structure/participants

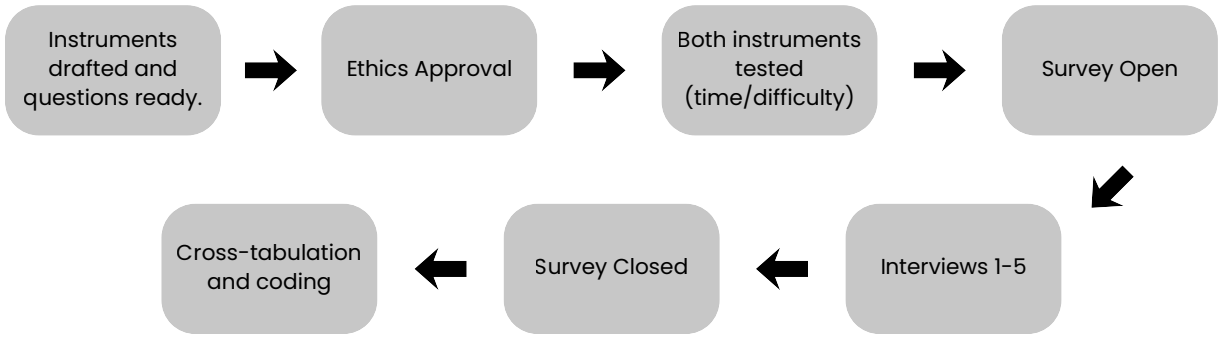


Figure 7: Timeline of the primary research

The survey was run anonymously and asked no identifying questions, four design decisions were made for particular reasons. The questions on difficulty gripping and holding things were made in alignment with the wording of the Australian Institute of Health and Welfare (AIHW). This was so that the results could be compared with the national data. In terms of hand conditions, questions were asked about by function rather than by diagnosis which meant avoiding asking sensitive questions and extensive health information and allowed responders who have never been formally assessed to take part. The onset of fatigue and the onset of performance loss were asked as separate questions as well in order to assess the interval between them. The willingness to accept a medical appearance was asked twice, one was a direct opinion statement and one was a priced choice between two otherwise identical accessories. This was because a direct question recorded an opinion and the priced one was to record a decision.

The grid density was kept low on the survey because participants with reduced hand function are the most likely to abandon a grid-heavy survey on a mobile device. That would lead to a bias towards able-bodied participants, shifting the data. This instrument was amended multiple times before distribution onto social groups on Facebook, Reddit and Instagram. Every handling question was asked from all participants, because a product intended to be universally usable must be tested against a wider group of people.

Each dataset was analysed separately before the two were compared. Survey responses were cross-tabulated, which is a bivariate analysis comparing two categorical variables. Each handling question was compared against two subgroup splits defined in advance. The first separates participants reporting a hand condition from those reporting none. The second separates users of a dedicated camera from phone-only participants. The first comparison is central to the argument, because where the two subgroups answer similarly the difficulty can be considered general, and where they differ, it can be attributed to reduced hand function. Results are reported as counts rather than percentages, because with twenty-three participants a single person represents more than four percent, and a percentage would suggest more precision than the sample allows. All twenty-three answered every question up to the priced accessory choice and one stopped there, so the ten Likert statements that follow carry twenty-two responses.

	PRACTICE	YEARS	LIMITATION, STATED BY FUNCTION	LONGEST TYPICAL SHOOT	CAMERA AND MASS	FIRST FAILURE SITE	FATIGUE ONSET	SUPPORT GEAR USED
P1	Student events photographer	~4 years	Hypermobility, self-described	5 h (formal ball)	Full-frame mirrorless, ~1–1.5 kg with flash	Hand and grip	~1 hour	Neck strap only
	ORIGINAL CONTRIBUTION	Fits everything before the shoot, then never adjusts it. Fatigue is paid in post-production time, not in missed frames.						
P2	Professional cinematographer, mid-40s	25 years	Age-related decline, stated plainly	up to 10 h	1.1 kg body to full cine rig	Back, shoulders and legs	1–2 h on a rig, 10 h on the body alone	Monopod beyond 2–3 h, rigs
	ORIGINAL CONTRIBUTION	Rotates which tissue carries the load across the day rather than reducing it. No product in the benchmark rotates.						
P3	Short-form content creator	~6 years	None reported	4 h handheld, no stabiliser	Full-frame mirrorless, ~1 kg	Wrist and forearm, shooting vertical	~4 hours	Wrist strap, cage
	ORIGINAL CONTRIBUTION	Rations hand effort — avoids changing settings to preserve finger capacity for the shot.						
P4	Hobbyist; the key informant	~5 years	Right radial nerve palsy: extensors and supination paralysed	3-day event	Light kit	Shoulder and neck, delayed	Not felt until after — a two-week nerve injury followed	Neck strap only
	ORIGINAL CONTRIBUTION	The camera works as an orthosis. His practice breaks at settings access, not at holding. Also survey respondent R23.						
P5	Professional events photographer	~10 years	Occupational wrist strain	2–10 h	up to 10 kg carried	Wrist, worse with vertical	Varies directly with how much vertical is shot	Straps; owns the most gear and never uses a monopod

Figure 8: Summary of data from the interviews

The sample is not representative of the intended user (Figure 9). Most participants are young, only nine report a hand condition, and both groups were recruited through own networks. The survey therefore cannot show how common these difficulties are among older photographers; it is used instead to describe photographers generally, so the impaired subgroup and interview cohort can be compared against them. This does not weaken the argument the project rests on: if a largely unimpaired sample reports the same handling problems, that is stronger evidence that the problem is general than an impaired sample would have provided. Future research would recruit through arthritis and photography-club networks to reach older photographers directly, and would measure grip force rather than relying on self-reported fatigue.

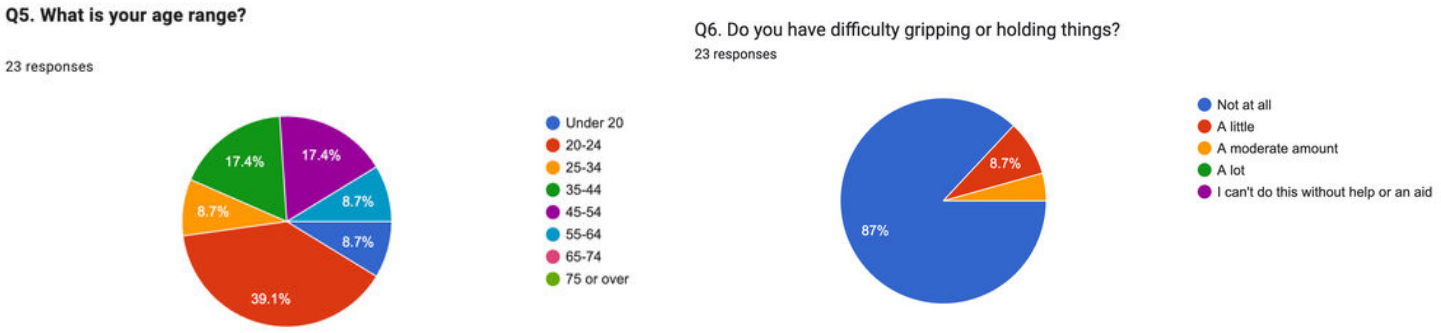


Figure 9: Survey participant answers: age vs. hand conditions.

The research was conducted under QUT human research ethics approval #11424, in accordance with the participant information sheets and consent forms in the appendices, and in line with the Australian Code for the Responsible Conduct of Research (2018). Survey responses were anonymous and unlinked, interview participants gave recorded verbal consent and signed forms in order to be interviewed. In terms of surveys, no responses were used to identify any participant and all participants signed consent prior to submission.

5.0 Analysis & Findings

The survey participants said they do not describe themselves as having difficulty with the AIHW question on difficulty gripping and holding things. However, nine of the participants reported a hand condition at the following question, six of them denied any gripping difficulty whatsoever (Figure 10).

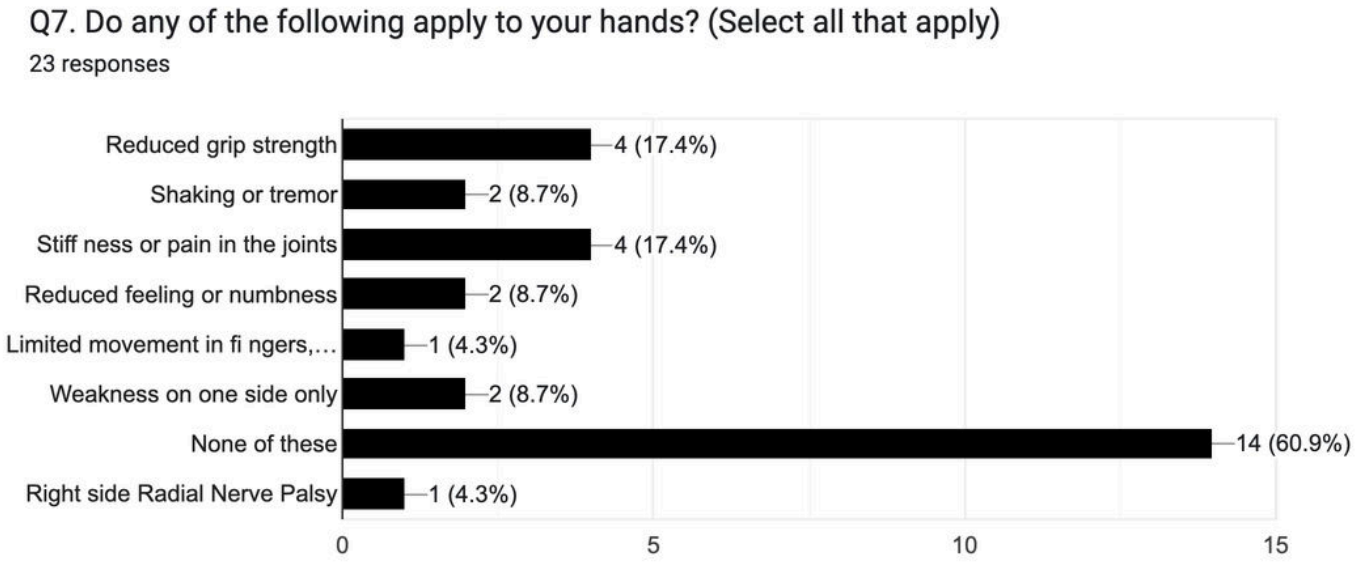


Figure 10: Six of nine who report a hand condition has just said "not at all".

From the data, it is understood that photographs degrade before fatigue is felt. Thirteen participants timed both the onset of fatigue and the onset of performance loss. Eight of the participants reported that their photography begins to reduce in quality at or before the point at which they first felt tired. Three of them strictly earlier and one felt tired after one to two hours but saw images degrade within fifteen minutes (Figure 11).

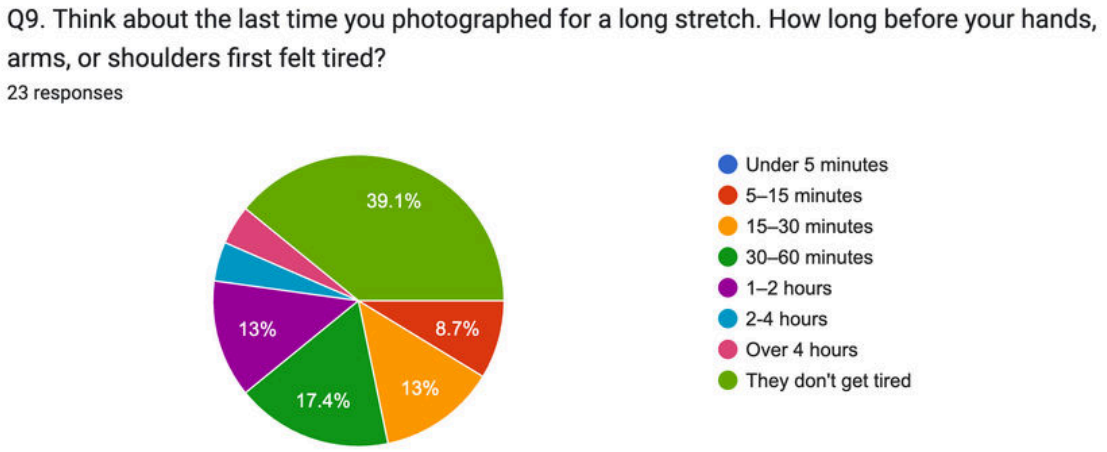


Figure 11: Eight of 13 participants report that their photos degrade at or before they first feel tired.

It was noted that fatigue changes behaviour rather than ending sessions. Twenty of twenty-three said tiredness rarely or never cuts a session short but instead when they want a photograph and do not feel like holding the camera, they use their phones instead. Their responses to fatigue are almost all adjustments to their own posture or grip, and only three of twenty-three reach for support equipment (Figure 12).

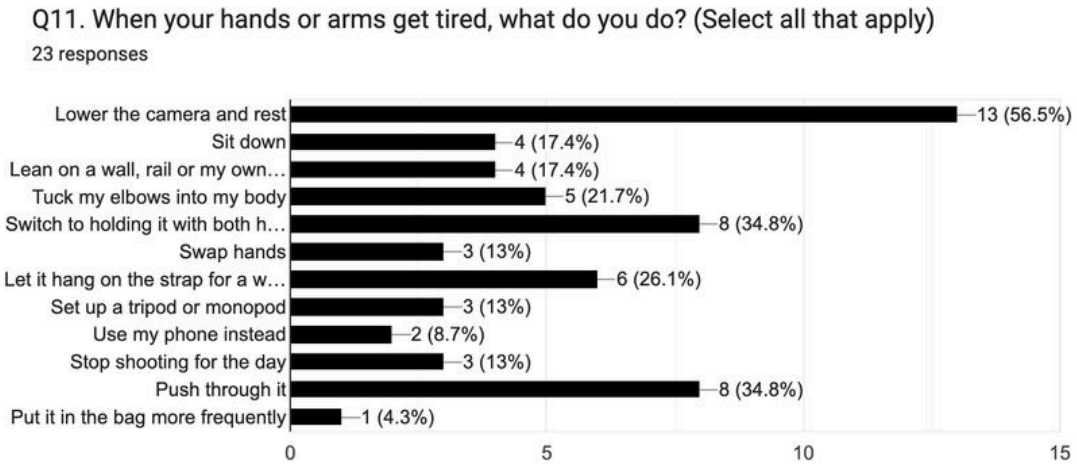


Figure 12: What photographers do when their hands get tired.

The small sized controls are the hardest item in the survey. Fifteen of twenty-two agreed that the small buttons on the rear are harder to use than the main dials. None of the nine participants that reported a hand condition agreed that they can operate a camera confidently with one hand and none agreed that manufacturers design for hands like theirs.

Two statements divide the subgroups completely. Of the thirteen participants without a hand condition who answered, eight agreed that they can operate a camera confidently with one hand and six agreed that manufacturers design for hands like theirs. Among the nine reporting a hand condition, none agreed with either statement and six of the nine actively disagreed that they can shoot one-handed.

It was also understood that appearance carries a price, it is a form of professionalism. Seventeen of twenty-two agreed that they would use an accessory that helped their hands even if others could see it, but then the same proposition was priced, thirteen of twenty-three chose the version that reads as camera equipment over an identical medical-looking one costing $150 less. Within the nine reporting a hand condition the split was 6 to 1 (Figure 13).

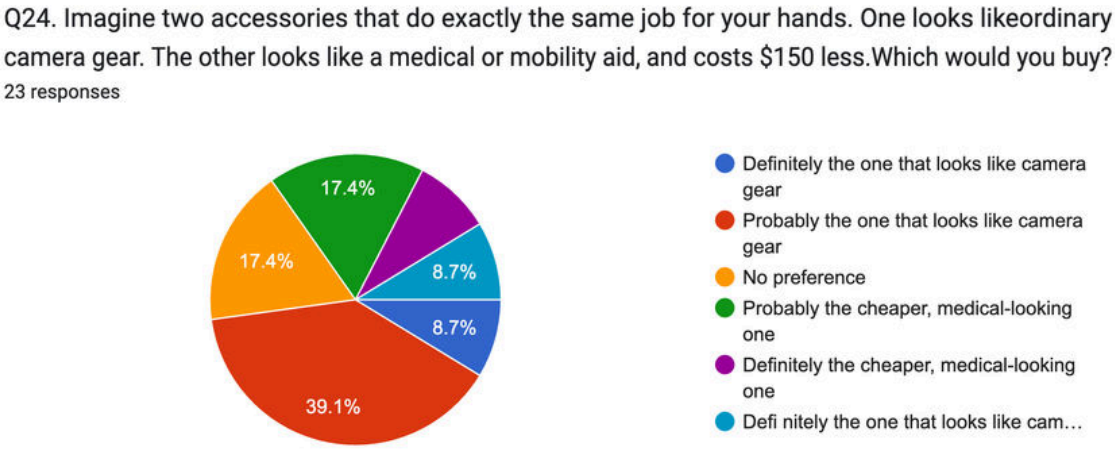


Figure 13: Camera equipment vs. medical-aid.

These difficulties are not confined to the impaired subgroup. Fifteen of twenty-two report the camera feeling heavier at the end of a session, in a sample where fifteen of twenty-three shoot under 700 grams and only nine report a hand condition of any kind.

5 main themes:

Theme 1: Vertical shooting has become the main source of strain. Three participants raised it independently and all link to social media. One participant shoots entirely for Instagram Reels, TikTok and YouTube Shorts. "Especially when I'm holding the camera for a vertical shot, my wrist is taking quite a lot of the load and my forearms tend to tire out". Another participant when asked how long into a shoot the camera feels heavy mentioned that "it comes down to how much vertical I'm doing, way more vertical these days". This opportunity is something to really focus on. Although the majority of the content on a daily basis is being released in vertical formats, the standard camera shoots horizontally. Held on its side it lifts the shutter hand and holds the wrist rotated and unsupported, and the one purpose-built remedy which was a vertical grip was rejected on weight and cost.

Theme 2: Fatigue is felt late. One participant worked across a three-day shoot and reported feeling fine throughout. However, after the event he woke up with a nerve injury that lasted a fortnight. Another described his physical shooting range narrowing before any defect appeared in the images. "Crouching less, going for higher shots less and I'm just trying to get through the day". A third person said that the "camera doesn't weigh much by itself but then by the fourth hour your wrist starts to tire out".

Theme 3: Photographers adapt rather than reach for equipment. The interviewed participants described rotating the camera between hands, tucking elbow in and raising shutter speed to compensate for a hold they no longer trusted. This converts the fatigue into more time needed for editing in post production. One participant rationed hand effort, avoiding settings changes to preserve finger capacity. The participant who owns the most support equipment said simply "I would never usually use a monopod for photography".

Theme 4: the controls are out of reach before the camera is. The participant with radial nerve palsy identified the rear control cluster as a major problem. He mainly names ISO as the worst of it and described lowering the camera out of the shooting position to reach it. Remapping cannot resolve this problem as there aren't enough physical inputs on a standard camera body for remapping.

Theme 5: A visible aid changes the photograph. All participants treated the appearance as a working concern rather than a personal one. One explained that "if you are clearly disabled, you don't want them feeling bad for you in the shot, and then not looking happy" which is a common occurrence according to the interviews.

The interviews raised two themes the survey did not test which was doing excessive vertical shooting and tool substitution. The rest of the interview content aligned with the survey content. (Figure 15)

6.0 Discussion

The background identified the gap in research. There was no study that observed a person with reduced hand function who was operating a camera and none tests whether those difficulties are shared widely. This research closes both and found something the literature does not describe.

There is a significantly larger demand in vertical content due to the native social media outputs. However, the standard camera has not changed its capability to shoot vertical over time. When a camera is held to capture vertical frames, the shutter and other crucial settings are located above (Figure 14). This causes the operator to have a rotated and unsupported wrist which is a difficult posture to maintain for long shoots. The ergonomics literature measures load in a neutral landscape grip so the posture photographers now spend most of the time has never been measured. The current solution available on the market is a vertical grip that adds a significant amount of mass and cost. This has led to repeated rejections on many occasions.



Figure 14: Handling positions for vertical format content.

That in itself reframes the weight problem that the camera has. Fifteen out of the twenty-three shoot under 700 grams, yet fifteen of twenty-two report the camera feeling much heavier by the end of a shoot. They mentioned that weight is what they would much rather change. One participantt named the real variable by saying "the camera doesn't weigh much by itself but by the fourth hour your wrist starts to tire out". It can be understood that users report mass because mass is the simplest vocabulary available for the time under load. So an industry competing on grams competes on the variable users can name, not the one limiting them while shooting.

The social status and professionalism of the photographer is another key component to having additional gear. Neither the assistive-technology literature or the photography sources ask whether a user would accept an aid. By asking questions in the interviews, it was clear that a visible aid degrades the work. This is due to the fact that the subject reads the photographer as disabled and that sympathy gets photographed.

Taken with the benchmark, this turns universal design from a principle into a requirement for the future of this design. The market already tested the alternatives and there is very limited options for the current need for vertical content. If the difficulties of vertical shooting were unique to photographers with a hand condition then a universal product would be a compromise. Instead, the subgroup differs in severity, not kind.

7.0 Design Implications

By doing benchmarking, it was understood that the mechanism was solved however the deployment was unsolved. The primary research shows what solving the actual deployment requires and revealed another opportunity with vertical shooting. Nine requirements follow which are set out in Figure 16 and traced to the results behind them in Figure 17. The first five describe what the product must do, the last four what it must be to reach anybody.

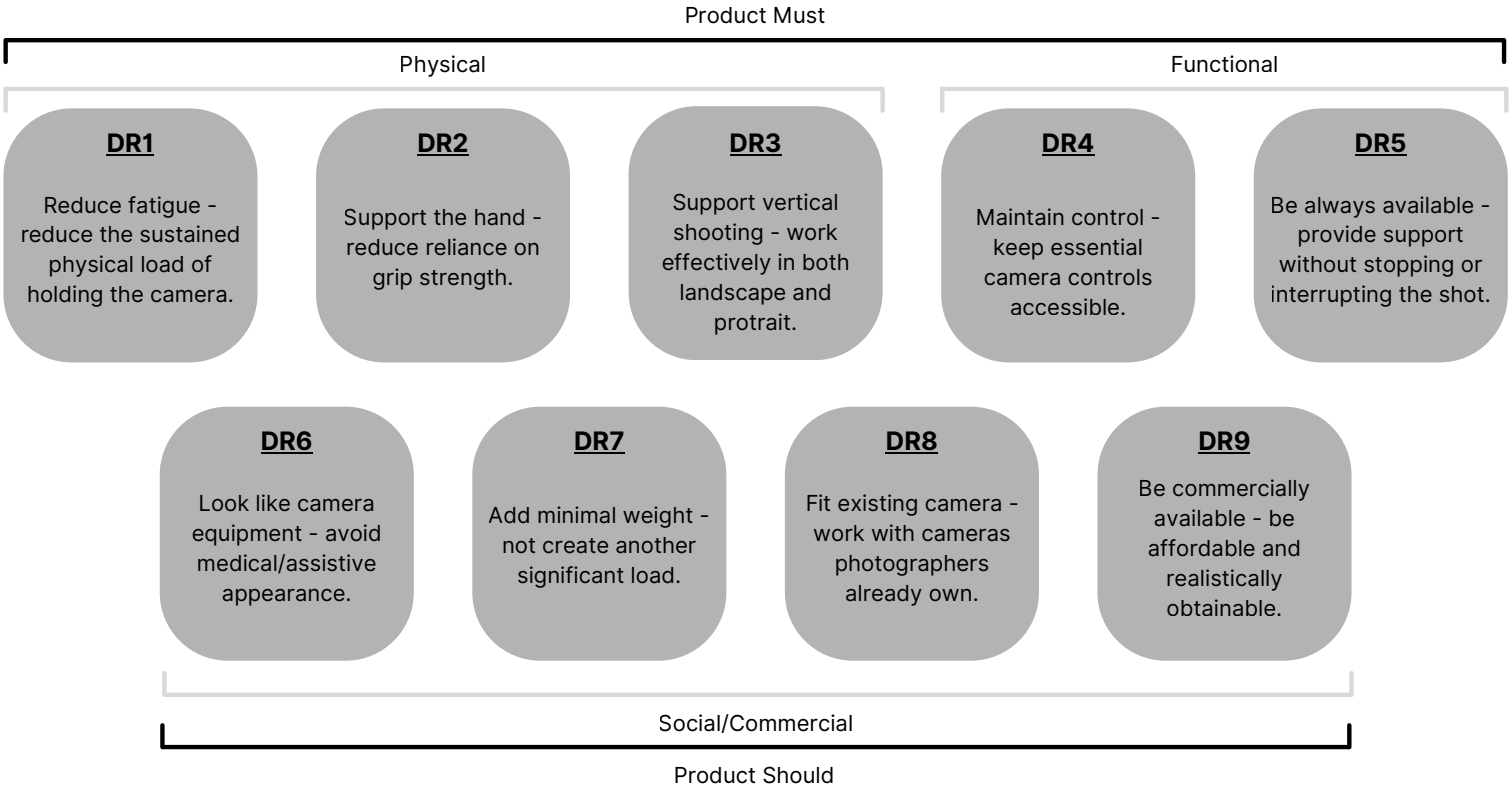


Figure 15: Design requirments for the redesigned product.

DR1 to DR3 are physical, DR4 and DR5 are functional and DR6 to DR9 are social and commercial. If the solution was to only satisfy the physical group would mean that only the measurable problem would be solved and never reaches the person who has it.

A device that supports only the landscape grip fails DR3 due to the fact that vertical is where the main strain is. A device deployed dyring the shoot fails DR1 as there is only three of twenty three answers fatigue with support gear and by then the cost is paid. This would mean that tripods, monopods, harnesses and rigs are entirely removed. A device that read as medical fails DR6 and damages the photograph as well as the users social status. A device which would add on larger amounts of load fails DR3 as every participant rejected weight bearing. Any solution that is also tied to one camera body also fails DR8 as the majority of the population already owns cameras.

Whatever lowers the physical cost of holding a camera must do it without adding build and without needing setup and without looking medical and must work in the vertical hold whre the strain now sits. No benchmarked product meets all four. The brief is therefore an accessory that can be fitting on mainstream cameras that lowers the fatigue of holding a camera for so long. It must fit cameras photographers own and it bought by people who want to shoot for longer in vertical format.

There are a few things that will require more research and surveying. Vertical loading was the dominant interview theme but the survey never asked about it so measuring that would be the first move. Grip depth was another common issue as forcing the little finger under the body was fatiguing. Lastly, the demand a camera places on its most likely user as a proportion of maximum strength needs to be looked into.

8.0 Conclusion

This report set out to understand how declining hand function affects the physical operation of a camer and the literature establishes who loses hand function and why static holding fatigues but never speaks of it together.

Benchmarking the twenty products showed clearly how there are products on the market that already solved the mechanism side of things but not deployment. The three built for hand impairments are its worst performers.

The primary research showed exactly where the strain sits by talking to people with first hand experience and on a variety of skill levels. It was understood that photographers shoot far more vertically than they used to because the platforms their work is made for is vertical and holding a camera sideways keeps the wrist rotated and unsupported. Their photography quality tends to decrease before they feel tired and they reach for a phone or resort to resting when tired rather than stopping. Socials status is a working variable as being seen with a visible aid changes the subjects expression and most people tend to have a different expression.

The design implication is support fitted rather than deployed, working both orientations, returning control access to the working hand and mounting to cameras that photographers already own. They product should also be indistinguishable from ordinary camera equipment as well. Overall this research establishes a direction specific to design towards.

9.0 References

- Agarwal, S., & Biagioni, M. C. (2023). Essential tremor. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK499986/
- Artisan Obscura. (2026). *Threaded soft release buttons*. https://www.artisanobscura.com/about
- Australian Institute of Health and Welfare. (2024). *People with disability in Australia 2024*. https://www.aihw.gov.au/reports/disability/people-with-disability-in-australia
- B&H Photo Video. (2026). *DJI Osmo Pocket 3*. https://www.bhphotovideo.com/c/product/1788803-REG/dji_cp_os_00000301_01_osmo_pocket_3.html
- Cala Health. (2023, April 19). *Cala introduces next generation system and accelerates leadership in bioelectronic medicine* [Press release]. Business Wire. https://www.businesswire.com/news/home/20230419005261/en/Cala-Introduces-Next-Generation-System-and-Accelerates-Leadership-in-Bioelectronic-Medicine
- Cinema Devices. (2026). *Ergorig*. https://ergorig.com
- Cotton Carrier. (2026). *G3 camera harness*. https://www.cottoncarrier.com/collections/camera-harnesses/products/g3-camera-harness
- Digital Camera World. (2024, August 23). *Student designs modular camera for left-handed photographers*. https://www.digitalcameraworld.com/news/student-designs-modular-camera-for-left-handed-photographers
- EazyHold. (2026). *Daily living eating aids and adaptive utensil holders*. https://eazyhold.com
- FunctionalHand. (2026). *A therapist's perspective on the problems with most universal cuffs*. https://functionalhand.com/universal-cuff/
- Griffin, A. (2017, November 15). *Fuji X100F Lensmate thumb grip review*. https://alikgriffin.com/fuji-x100f-lensmate-thumb-grip-review/
- GyroGear. (2026). *GyroGlove*. https://gyrogear.net/product/gyroglove/
- Harris, M. (2025, October 19). *My heavy camera is killing my wrist. This is why a bigger camera isn't always better*. Digital Camera World. https://www.digitalcameraworld.com/cameras/mirrorless-cameras/my-heavy-camera-is-killing-my-wrist-this-is-why-a-bigger-camera-isnt-always-better
- Insta360. (2025). *Insta360 GO Ultra: High-performance 4K mini camera*. https://www.insta360.com/product/insta360-go-ultra
- Manfrotto. (2026). *Grip ball head, ergonomic handle and friction control wheel (322RC2)*. https://www.manfrotto.com/global-en/grip-ball-head-ergonomic-handle-and-friction-control-wheel-322rc2/
- Mayo Clinic. (2024). *Parkinson's disease — Symptoms and causes*. https://www.mayoclinic.org/diseases-conditions/parkinsons-disease/symptoms-causes/syc-20376055

- Peak Design. (2026). Clutch. https://www.peakdesign.com/products/clutch
- Performance Health. (2026). Grasping cuff. https://www.performancehealth.com/grasping-cuff
- RLight. (2020, June 1). Ergonomics question: Dealing with wrist fatigue and inflammation [Online forum post]. DPReview Forums. https://www.dpreview.com/forums/thread/4492721
- Sheldon, G. (2020, February 17). Ergorig vest field review — Operator friendly camera support. CineD. https://www.cined.com/ergorig-field-review-operator-friendly-camera-support/
- SmallRig. (2026). Universal wooden side handle. https://www.smallrig.com/smallrig-wooden-universal-side-handle-hsn2093c.html
- Sony Interactive Entertainment. (2023). Access controller. PlayStation. https://www.playstation.com/en-us/accessories/access-controller/
- Steadiwear. (2026). Steadi-3 technology explained. https://steadiwear.com/pages/steadi-3-technology-explained
- Verily. (2016, December 1). Verily Life Sciences launches Liftware Level device to help people with limited hand and arm mobility eat with confidence [Press release]. https://verily.com/perspectives/verily-life-sciences-launches-liftware-level-device-to-help-people-with-limited-hand-and-arm-mobility-eat-with-confidence
- Wang, C., & Cai, D. (2017). Hand tool handle design based on hand measurements. MATEC Web of Conferences, 33. https://www.matec-conferences.org/articles/matecconf/pdf/2017/33/matecconf_imeti2017_01044.pdf

9.0 Appendices

Survey Results

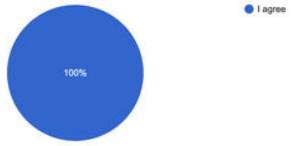
Statement of consent

By signing below, you are indicating that you:

- Have read and understood the information sheet about this research project
- Understand that your participation is voluntary and that you can withdraw at any time, without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact me on email n11089237@qut.edu.au

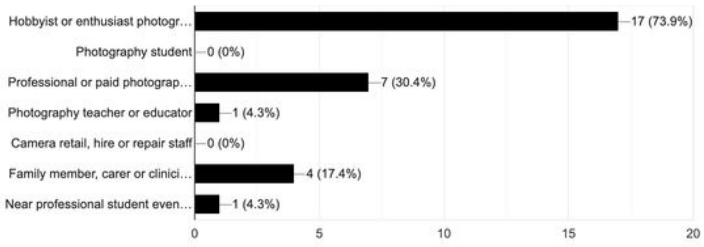
I agree to participate in the research project:

23 responses



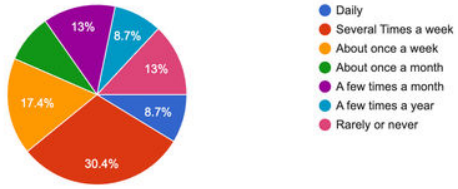
Q1. Which of these describe you? (Select all that apply)

23 responses



Q2. How often do you use a camera (not a phone)?

23 responses



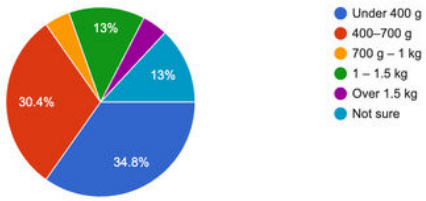
Q3. Which do you shoot with most often?

23 responses



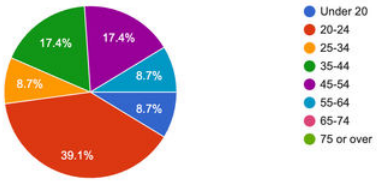
Q4. Roughly how heavy is your usual camera and lens together?

23 responses



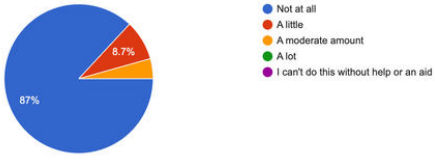
Q5. What is your age range?

23 responses



Q6. Do you have difficulty gripping or holding things?

23 responses



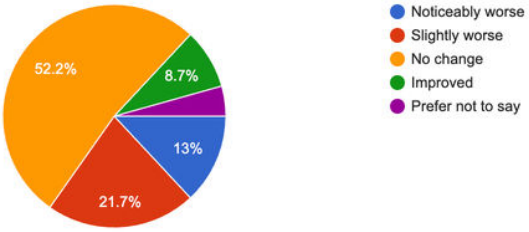
Q7. Do any of the following apply to your hands? (Select all that apply)

23 responses



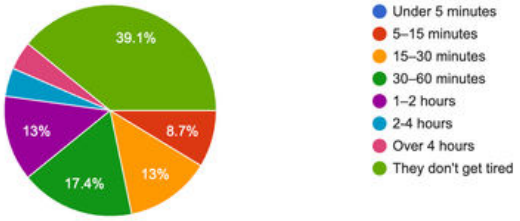
Q8. Has your hand function changed over the last five years?

23 responses



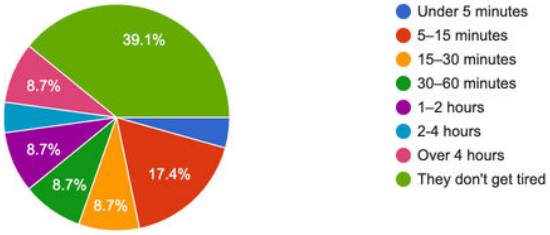
Q9. Think about the last time you photographed for a long stretch. How long before your hands, arms, or shoulders first felt tired?

23 responses



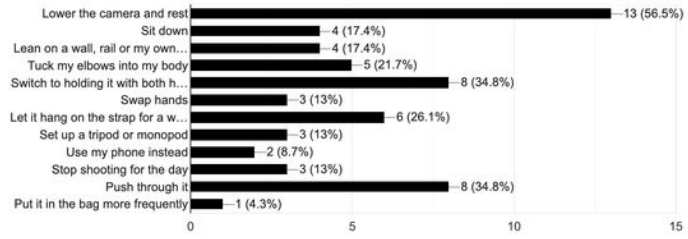
Q10. And how long before that tiredness started to affect your photos - shakier frames, missed shots, or giving up on a shot?

23 responses



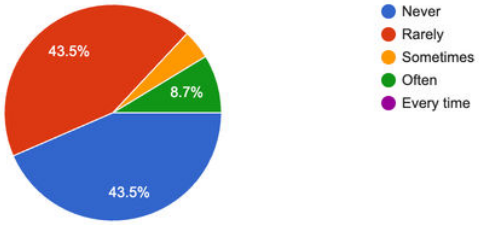
Q11. When your hands or arms get tired, what do you do? (Select all that apply)

23 responses



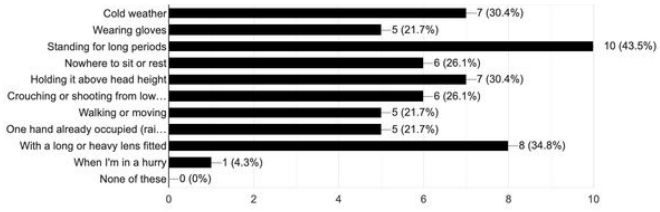
Q12. How often does hand or arm tiredness cut a photography session short?

23 responses



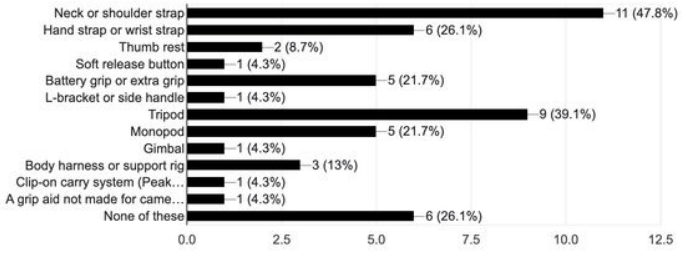
Q16. In which situations is your camera hardest to hold or operate? (Select all that apply)

23 responses



Q18. Which of these do you own or use to make handling easier? (Select all that apply)

23 responses



Q19. When you want a photo but don't feel like holding the camera, what do you actually do?

23 responses



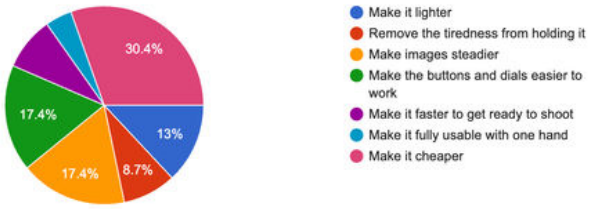
Q20. Have you ever bought something to make your camera easier to handle, and then stopped using it? What was it, and why did you stop? What brand/model was it?

23 responses

No
A stick from Amazon because the Dji action 6 by itself is hard to hold
Side handle - smallrig
No
Tripod, Hassle to carry
Wrist strap
N.A
N/a
na

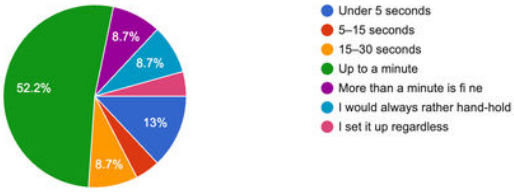
Q21. If a camera company could fix just ONE of these for you, which would you pick?

23 responses



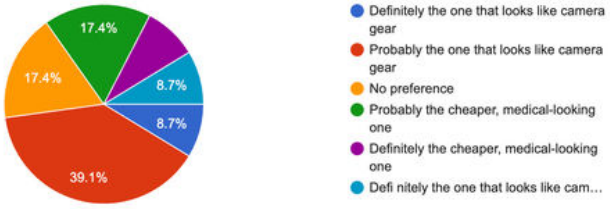
Q23. Support gear such as a tripod, monopod or harness removes hand fatigue, but takestime to set up. What is the longest you would spend setting one up before you'd rather justhand-hold?

23 responses



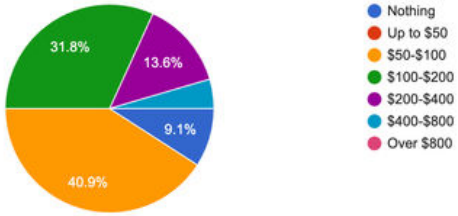
Q24. Imagine two accessories that do exactly the same job for your hands. One looks likeordinary camera gear. The other looks like a medical or mobility aid, and costs $150 less.Which would you buy?

23 responses



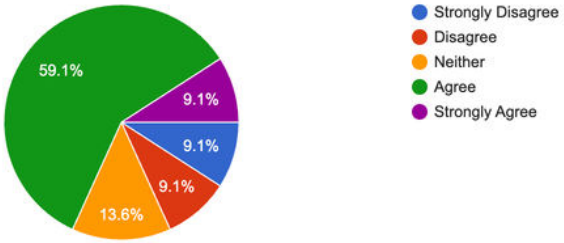
Q25. What is the most you would pay for an accessory that completely removed hand fatigue,without changing how your camera works?

22 responses



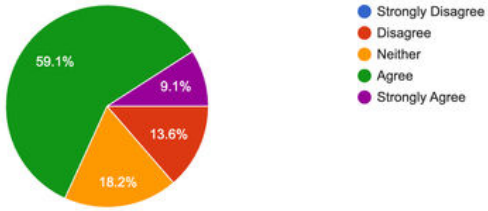
Holding my camera steady for an extended period is physically demanding.

22 responses



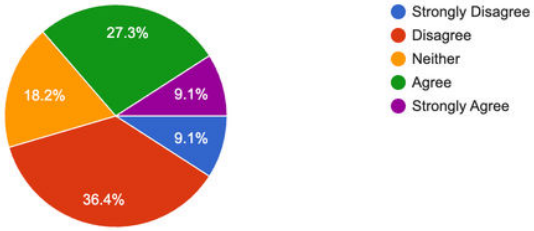
My camera feels heavier at the end of a session than at the start.

22 responses



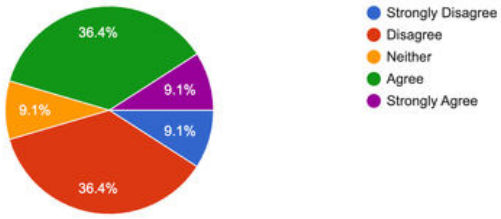
I can operate my camera confidently with one hand.

22 responses



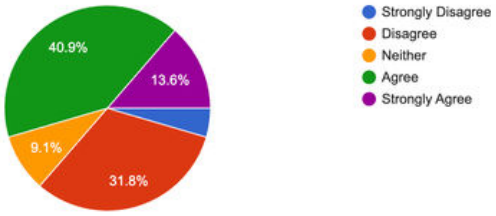
Adjusting dials, buttons and switches while holding the camera is difficult for me.

22 responses



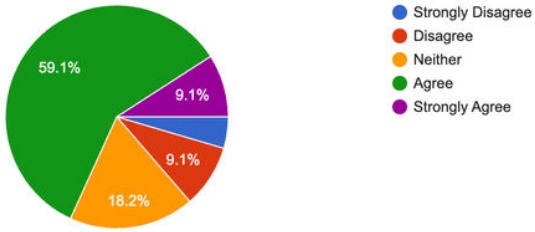
Pressing the shutter without moving the camera takes more effort than it should.

22 responses



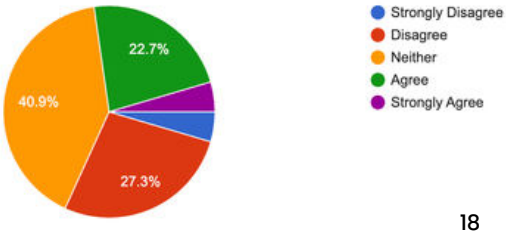
The small buttons on the back of my camera are harder to use than the main dials.

22 responses



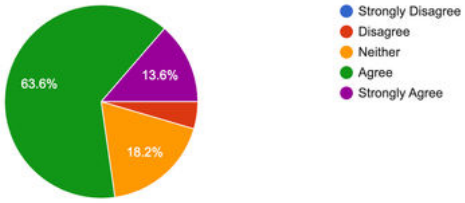
Camera manufacturers design for hands like mine.

22 responses



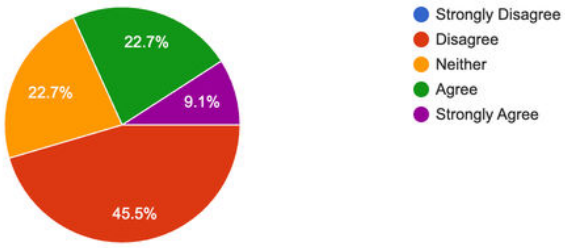
I would use an accessory that helped my hands, even if other people could see it.

22 responses



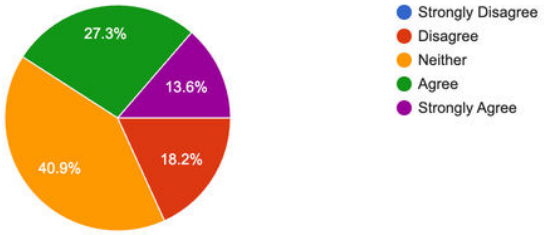
I would rather struggle with a camera than use something that looked like a mobility aid.

22 responses



Being able to shoot for longer matters more to me than having a lighter camera.

22 responses



Q26. Which parts of using a camera do you find the most physically awkward or tiring, and what do you currently do to work around this?

23 responses

Pressing the record button whilst holding the camera in one hand
Change the f stop
Holding it
Filming at higher angles that require you to keep your arms above your head for an extended period of time. In these circumstances I just ignore the pain and push through.
I do not use cameras but probably waiting for the focus on the camera to shoot the image
The length of grip which doesn't let the pinky finger rest on the grip.
Changing lenses
not much really
Holding it up. Take breaks when necessary then resume with shooting

Q26. Which parts of using a camera do you find the most physically awkward or tiring, and what do you currently do to work around this?

23 responses

Holding modifiers is the thing I struggle most with. Like a reflector while trying to shoot one handed.
.
Shooting with a long heavy lens can be quite demanding on the fingers, wrist, elbow.
Holding steady for distance shots. Set it on a railing, or use a tripod
Long lenses, I always use appropriate support (monopod, tripod etc)
Go pros are fidly with buttons and SD cards
Holding it for longer periods of time and manual focusing with single have (I use manual primes, turning the ring with a pinky is possible but hard). One more thing is significant to me, and it's carrying my camera in a sling bag. It always is on my right side, so my right arm, right back, right elbow are affected.

Q27. If you could physically change one thing about any camera you've used, what would itbe?

23 responses

The weight
have on or off switch for the action vs normal use. So that I can press the record button easier when not doing action stuff. Like how you can lock the phone screen until you press it three times or something.
The record button
The weight
Make the grip bigger while not increasing the weight.
Multiple shutter buttons
better autofocus
Weight, make it lighter
Easier access removable parts like the lens release button being extended out instead of being tucked into

Q27. If you could physically change one thing about any camera you've used, what would itbe?

23 responses

Dfg
I'd make the LX5 truly pocketable
I like the ergonomics of my cameras. It's why I chose them, in part.
.
A bigger/deeper grip.
I honestly don't know
Nothing
Screwing on to the tripod is a pain.
They should make it easy to grip and keep it on the light side. My a7cii is the smallest full frame, and it had a nice grip to it already.