Age Related Injury Prevention in Aikido Training
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"O Sensei's Rules of Training" #5: *"In daily practice first begin by moving your body and then progress to more intensive practice. Never force anything unnaturally or unreasonably. If this rule is followed, then even elderly people will not hurt themselves and they can train in a pleasant and joyful atmosphere."*

As we age, our bodies are sometimes not able to handle the same physical challenges and stresses as when we were young. The following discussion addresses how age-related changes in the body may impact training, and potential options for mediating those effects. It also discusses things that individuals can do to continue training in a safe and rewarding way, as well as what instructors can do to allow older individuals to train safely. All of these suggestions may also benefit others with physical limitations, whether or not those limitations are age-related. In this discussion, "power" refers to muscular power, which is force x speed; power associated with ki is probably not affected by aging. This document sometimes refers to another document on "Injury Prevention," available on my website: Suggestions for preventing and protecting injuries in Aikido training. This document is intended for people who already know Aikido. Beginners may have additional issues or concerns.

Injuries are more likely when there is a mismatch between the speed or strength off attack and response, or if someone suddenly changes/increases speed or strength in the middle of a technique (sudden 'stop and start'). In general, it can be helpful to have a rating system for adjusting the speed and strength of the attack. Rate speed and strength each on a 0-10 scale, where 0 is static (no speed) or touchless (no force) and 10 is as fast/strong as you can go. This rating system can make it easier for partners to communicate how to adjust attacks or responses to train safely.

1. **Changes in the aging body, and how this may affect training**
    a. **Decreased muscle mass affects strength and power.**
        i. People might not be able to generate enough force to do certain techniques as nage (e.g., koshi).
            1. Option: modify techniques as needed, such as doing the entry, but not the full throw. Some breakfall techniques can be done into a forward roll so that nage does not need to generate as much power.
        ii. Imbalance in strength between uke and nage can put uke at risk if nage is not careful – it will be easier to overpower someone who is not as strong.
            1. Option: Stronger individuals need to be thoughtful about how much strength they use. This is especially true when training with someone who used to be stronger, and the expectations need to

be adjusted. Adapting strength used to specific partners should be universal practice.

iii. Decreased ability to generate force or movement quickly can make ukemi more dangerous, as a person might not be able to react as quickly, and might not move quickly enough to prevent injuries.
    1. Option: Individuals need to be thoughtful about how quickly they apply techniques. This is especially true when training with someone who used to be faster, and the expectations need to be adjusted. Adapting speed used to specific partners should be universal practice.

iv. Decreased ability to get up from falls and rolls. Decreased tolerance to doing a lot of falls or rolls.
    1. Option: Strengthening of gluteal and quad muscles outside of class may help. Otherwise, the individual can limit the number of falls and rolls.

b. Avoiding too much repetition

i. Some joints don't tolerate repeated stresses, even if mild, as we age. For example, the rotator cuff in the shoulder can be stressed by repeated movements such as ikyo, nikyo, Sankyo.

c. Stiff joints limit motion.

i. Stiff knees make it difficult to sit in seiza.
    1. Option: Make sure the quad muscles are well stretched so they don't compress the knees during knee flexion. (see recommended quad stretch in Leslie's "Injury Prevention" handout.)
    2. Option: Use a meditation cushion to sit in seiza during demonstrations. Or sit cross-legged or stand.

ii. Stiff knees make it difficult to bend knees enough to take ukemi.
    1. Knees that are painful, rather than stiff, might be aggravated by tight quad muscles, so proper stretching can help. It is important that these stretches be done correctly to stretch the rectus femoris muscle without compressing the kneecap or bending the knees too much. (see "Injury Prevention" guide)
    2. Knees that are painful, rather than stiff, might be aggravated by weak gluteal muscles, so strengthening the glutes can help. The gluteal muscles should do most of the work standing up from a fall or roll, not the quads. (see "Injury Prevention" guide)
    3. Make sure knees are not bending forward to the feet: knees should not pass toes. This requires strong glutes.

iii. Stiff joints, in general, can make ukemi riskier if nage does not adapt the motion demands. For example, if nage bends a wrist or shoulder further than it can safely go.
    1. Option: Ukes can learn to gently resist passive joint movements (e.g., pins) to avoid 'overpressure' past what is comfortable. This

principle can be applied to wrists and shoulders. (see "Injury Prevention" guide)
2. Option: Nage should apply movement or pressure slowly enough that uke can move to keep joints in safe ranges.

iv. Stiff spine can make rolling difficult.
1. Option: Stretching exercises or abdominal strengthening might help people remain round. However, sometimes anatomy changes and exercise off the mat might not help enough.
2. Option: Take back falls rather than forward rolls, or don't take falls at all. Take 'side' falls rather than rolling straight back.
3. Option: Dojos with multiple classes might consider 'fall-free' classes that include standing techniques, randori, maybe front ukemi (e.g., Ikyo, Sankyo, etc.).

d. Decreased resilience, increased risk of injury, slower recovery from injury.

i. Minor 'tweaks' are more likely to be injuries, and injuries are slower to heal as we age.
1. Option: minimize injuries using all the suggestions here.
2. Option: mark vulnerable joints (e.g., tape) so that people know to be careful. Or wear splints or braces (e.g., wrist or thumb braces) to protect vulnerable joints. Alerting nage to vulnerable joints can help nage tune techniques appropriately.

ii. Speeds and power that used to be safely tolerated now risk injury. Injuries are more likely when there is a mismatch between the speed or strength off attack and response, or if someone suddenly changes/increases speed or strength in the middle of a technique (sudden 'stop and start').
1. Option: Use the 0-10 rating system for communicating and adjusting the speed and strength of the attack: 0 is static or touchless (no force) and 10 is as fast/strong as you can go.
2. Option: Avoid sudden changes in speed or strength in the middle of a technique.

e. Inability to take breakfalls

i. Older bodies simply might not tolerate breakfalls.
1. Option: Some throws can end in forward roll instead of breakfall.
2. Option: Allow students to do the entry without the full throw/fall. Students can be paired with others who don't want to do breakfalls.

f. Fragile skin and easy bruising problems with wrist grabs and strikes/blocks.

i. As we age, skin becomes thinner and more fragile, and tears more easily. There is also less tissue under the skin, so bruising occurs more easily with grabs and strikes.
1. Option: Ukes can learn to grab without squeezing forcefully. Ukes can work on connecting and following rather than grabbing and being dragged.

2. Option: Both uke and nage can work on lower impact strikes and smoother blocks. Nage might need to train more slowly to succeed at smooth blocks until more skill is gained. Uke and nage can select strength and speed that are appropriate for smooth blocks that still challenge nage's center.

2. What can individuals do to minimize their own injury and pain?

a. It becomes more important to warm up before exercise as we age. Warming up involves gentle aerobic movement to improve circulation. Stretching is not the same as warming up, but stretching can be helpful to move joints and muscles through their full range before actual training begins.
b. A cardiovascular warm-up is also more important as we age. In a perfect world, a 10 minute warm up is ideal for older individuals. If the class does not provide this type of warm-up, try to come early and warm up on your own. If you have known cardiovascular issues, you may need to limit training intensity.
    i. Older individuals should also do a few minutes of cool-down rather than stopping exercise abruptly. A cool-down of gentle movement (not static stretches) allows the heart to recover from exercise.
c. Older adults should have 2 days recovery between high intensity exercise. If you vary activities so that it isn't all high intensity, you may be able to train more often. For example, you could train more often if you are doing a sword class or a lower intensity class between high intensity classes.
d. Add exercises off the mat to maintain optimal strength, joint and muscle mobility, balance and coordination. (see "Injury Prevention" guide)
e. Learn to take safe/protective ukemi by learning to move before being forced to move, and preventing joints from being pushed into or past end-range. (see "Injury Prevention" guide)
f. Mark vulnerable joints with tape or wear braces/splints to alert partners to be careful.
g. Stretching muscles after training can help prevent them from tightening up and producing stress on joints. This is particularly true for anterior knee pain, which is often caused by tight quads.
    i. As we age, longer stretches are more effective than short duration stretches; for example, one 60 second stretch is more effective than two 30 second stretches. Several reps/day are necessary to actually elongate muscles as we age. You might need to do additional stretches outside of class.
    ii. Static stretching is better to elongate muscles, and should be done as part of the cool down.
    iii. Ballistic stretching, if done at all, should only be done after muscles at the end of the warm up.
h. Appreciate the wisdom that comes with age and look for less forceful ways to do techniques.
i. Let go of the belief that vigorous training is the best way to train. Appreciate the more subtle aspects of Aikido training.

j. Explore some of the philosophical principles underlying training as an alternative to focusing on technical aspects of training.

3. What can the instructor do to minimize injury and pain?

a. Emphasize the importance of safe training. See quote from O Sensei.
b. Emphasize that safe training is skillful training and not a watered-down version of Aikido. Discourage the attitude that fast and hard training is always best.
c. Warming up and stretching are different things. Warming up involves a few minutes of gentle aerobic movement. A cardiovascular warm-up is more important as we age. Gradually increase physical effort to increase heart rate at the beginning of practice, preferably before stretching muscles. In a perfect world, a 10 minute warm up is appropriate for older individuals. A warm-up might include few minutes of footwork, and gradually ramping up the aerobic level during the first few minutes.
d. Teach how to adapt techniques to be more careful about stresses applied to uke's body.
e. Teach protective ukemi. (see "Injury Prevention" guide)
f. Offer alternative versions of techniques that allow for decreased stress on the body. For example, kote gaeshi could be done into a back fall, forward roll, or breakfall. Allow students to choose the version they want to do.
g. Incorporate musubi style technique (light touch connection practice) to emphasize the importance of ki connection rather than relying on forceful physical connection.
h. Allow students to self-select how energetically or forcefully they want to train. Students who want to do faster/stronger versions of techniques could go to one side of the mat and those who want to do slower/gentler versions could go to the other. In small dojos, the instructor can assign partners so different pairs can work on different movements or at different intensities.
i. Avoid lots of repetitions of similar stresses, such as forward rolls or wrist pins. Vary the content and intensity of class so that there isn't too much of any one type of stress. For example, alternate forward roll techniques with back falls or front techniques. Or alternate wrist pins with techniques that don't stress wrists.
j. Offer low impact classes. These might also be appealing to beginners or others with physical impairments. Other options would be no-roll classes.

4. What health screenings would be helpful for adults over 50?

a. A general physical, asking your provider if there are any other precautions for you.
    i. People who have had cancer treatment (especially chemo) should talk to their MD about exercise limitations.
b. Bone density screening. If you have low bone density, you may need to limit spinal flexion and rotation. Forward or backward rolling might not be appropriate for people with low bone density. Back falls should avoid too much spinal flexion.
c. Heart/cardiovascular screening.