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Looking after your

Teeth

An evidence-based
guide for those with
upper limb difference



Parkin, C.L., Courtnage, L., Jones, L., Jenkins, A.,
Yar, U.B., Clubok, L.F. and Eaton, K.A.

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About This Guide

This guide was created for people with an upper limb difference, on one side, with one remaining working arm or hand.

Many people with an upper limb difference use their teeth to help with everyday tasks. Over time, this can damage teeth and make brushing harder.

Researchers asked people around the world about their experiences. Many said they had never been given advice about how to care for their teeth safely^[1].

Important Findings

Research shows^[1]:

- Many people use their teeth to help with everyday tasks.
- Adults with an upper limb difference are more likely to chip or damage their teeth.
- Many amputees do not realise how often they use their teeth.
- Brushing teeth can be tiring or painful because one arm does most of the work.

Let's consider some terminology next...

Understanding Limb Terminology

For Persons with Upper Limb Difference

Upper Limb Amputation Levels

Forequarter amputation (implies removal of part of scapula, clavicle and all of the upper limb)

Shoulder disarticulation
(Amputation through glenohumeral joint)

Transhumeral / Above elbow

Elbow disarticulation

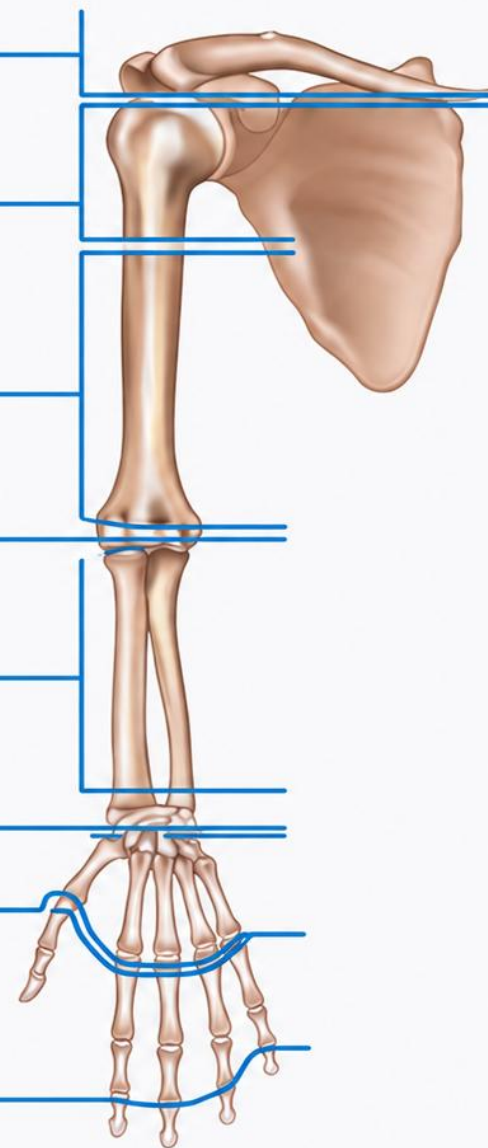
Transradial / Below elbow

Wrist / Styloid disarticulation

Transcarpal, Transmetacarpal or Metacarpophalangeal disarticulation

Phalangeal amputation

Interphalangeal disarticulation



Names for a Limb Stump (Residual Limb)

- 1 **Residual Limb** - Medical term for the limb stump.
- 2 **Amputation Stump** - Older term you might hear.



What do you call yours?

In this guide we use these terms

Terms for the Other Arm (Intact Limb)

- 1 **Contralateral Limb**
"Arm on the opposite side"
- 2 **Unaffected Limb**
"Unaffected or normal arm"
- 3 **Sound Limb**
"The good arm" (Older term)



Residual Limb

Intact Limb

Example: "You have a right transradial amputation. Your contraateral (left) limb is intact."

Research shows that...

78%

of adult and child upper limb amputees believe that **they use their teeth more** because of their limb difference.

43%

of upper limb adult amputees and 10% of children **have chipped or damaged their teeth** whilst using them for everyday tasks.

upper limb amputees are

4.26 times

more at risk of tooth damage than the general population.

... and 97% of adults and 87% of children surveyed have never received advice on how to look after their teeth as a limb different person^[1]



Most upper limb amputees can brush their teeth for 2 minutes...

*..but many complain of pain and difficulty due to **overuse of the intact limb** from their many other daily activities.*



Avoid using *Teeth as Tools*

Research shows that:

95% of upper limb amputees use their teeth for common daily tasks^[1]:

- Opening food packets
- Cutting tape
- Opening bottle caps
- Holding keys
- Holding pens and pencils
- Opening post
- Opening jars
- Untying knots
- Putting on jewellery
- Closing doors
- Swiping cards
- Personal care
- Folding sheets
- Tidying up
- Cleaning
- Pulling up sleeves
- Tying shoes
- Getting dressed



Participants said:

I believe that using my teeth to do activities has probably weakened them...

My teeth are not only chipped but have suffered wear and tear from overuse...

I do have concerns that using my teeth puts items in or near my mouth that are not intended to be in or near one's mouth...

I have had times where my teeth are sore from using them for tasks..

..my dentist has said I must be grinding my teeth at night, but I am now realising that I most likely don't grind my teeth; he's probably seeing the effects of me using my teeth...



Research shows that many upper limb amputees do not realise they are using their teeth because it is part of their normal everyday behaviour. Therefore, **recognition** is key^[1].

REMEMBER:



S - Stop

– pause before using your teeth.

T - Think

– could this damage your teeth?

O - Opt for another way

– try safer tools or ask for help.

P - Prevent problems

– take care of your mouth and teeth every day.



Notice when you use your teeth.

Try keeping a simple diary over one week:

Day	Tasks where I used my teeth	Next time I will...
On Monday I used my teeth to...	Open my porridge packet. Tie my laces.	Use scissors.
Tuesday	Used my teeth to hold my bunch of keys whilst I looked for the actual front door key.	Put the shopping bag down whilst opening the door, rather than holding the bag in my teeth.
Wednesday	I wrapped up my daughter's birthday presents and used my teeth to tear the Sellotape.	Buy myself a Sellotape dispenser.
Thursday	Cooking dinner, I opened the microwave rice packet with my teeth. I repaired the shelf today and held the drill bit in my teeth, as well as the screws.	Use scissors. I use my teeth a lot I realise. I must find alternative ways of holding things.
Friday	Decided to stick on false nails today – used my teeth to squeeze the glue out onto the false nail, got super glue all over my tongue and teeth. Nail polish was sticky and I used my teeth to undo the lid, and it actually hurt my teeth.	Avoid putting super glue in my mouth – yuck!! Try to hold it against the table next time.
Saturday	Put on my sweater and my sleeve needed pulling down, so I used my teeth and now I have a mouth full of sweater fluff!	Ask someone to pull my sleeve down or hold my sleeve between my stump and the door frame.
Sunday	Today I tried really hard not to use my teeth at all....	

Record what you used your teeth for? Why you did it? What safer method could you try next time?



Day	Tasks where I used my teeth	Next time I will...
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

Looking after your

Teeth when brushing is hard!

My arm gets tired after brushing for 30 seconds

A lot of one-sided upper limb amputees have **symptoms of overuse** in their intact arm. This means that your intact arm gets tired much quicker and as this is the arm you use all of the time in everyday life, including cleaning your teeth, it is possible that you are not cleaning properly^[1,2].

Limb different individuals said^[1] ...

I've been told by my dentist that the teeth on the left side of my mouth need to be brushed better. This is the side of my body with my normal hand, she said it could be because it's more of an uncomfortable angle since I can't switch hands to brush that side of my mouth...

I have pain in my arm and struggle to hold my toothbrush for too long..

Brushing behind my teeth is difficult due to the position I need my wrist in...

I struggle to floss - which dentist recommends I do – I have lots of fillings and gum issues...

I've had braces and then a metal bar placed behind my teeth to prevent my teeth from getting loose and moving around. It's provided that extra strength needed to not risk too much damage and has made a pretty big difference because as i was younger my lower front teeth were often very unstable due to me using them...

Teeth are not tools...

Many dental advice websites or blogs advocate not to use your teeth as tools^[3-6], **but it is much harder not to use your teeth if you have a limb difference.**

How can you look after your teeth?

For one-sided upper limb amputees, effective cleaning can be difficult, but it is important to reach all the areas of the mouth to clean effectively:

Brushing for two minutes:

- Brush in increments of 30 seconds as a time - rest your arm in between.
- Squeeze toothpaste directly into your mouth and then brush your teeth⁷ or
- Use an electric pump dispenser^[7].
- Spit out after brushing - do not rinse with water, so that the fluoride stays on your teeth longer^[6].
- Use a floss stick instead of string, to save twisting your arm^[7,8].
- Sit down and rest your brushing-arm on something as you brush (e.g., on the sink or the arm of a chair).

Is there anything to make brushing easier?

- A toothbrush with a small to medium head size with soft to medium bristles is usually recommended. There are special handgrips and other adaptations which can be fitted to manual toothbrushes to make them easier to hold^[9].
- Electric or 'power' toothbrushes are recommended for people with mobility problems^[8].
- Speak to your occupational therapist (OT) about adaptive toothbrush options such as triple head brushes (see page 16).

Teeth are not tools...

How can you look after your teeth?



Professional dental care:

- Your dental team can remove build-up of plaque and calculus (tartar) or treat gum disease^[8].
- Regular dental check-ups are important^[8].
- See your Dentist every 6 months. Discuss your limb difference with them and the effect this has on your oral hygiene practices so that they are aware that your teeth are at a higher risk^[7].
- Brush your teeth last thing at night and at least one other time during the day, with a fluoride toothpaste^[8].

False Teeth:

- Soak them before brushing them. Sit down. Put a towel on your lap and put the dentures between your knees. Slowly rotate the dentures until you have brushed them clean^[9].
- Dentures should be stored in water overnight to stop them drying out. Denture cleaner can be used to clean your dentures, but not to store them in because it can cause damage.

Helping children...



look after their teeth



When should I take my child to the dentist?

- Children should go to the dentist with their parents as soon as possible. Take them regularly, as often as your dental team recommend^[11,12,13].

How should I clean my child's teeth?

Carers and family members need to take responsibility for supporting a physically disabled person to effectively manage their oral health at home on a daily basis^[14].

- Stand or sit behind your child, cradling their chin in your hand so you can reach their top and bottom teeth easily.
- Supervise your child's brushing until they are at least seven^[15], but you may need to continue to do this for much longer if they are struggling because of their limb difference.
- Don't forget to brush gently behind the teeth and onto the gums.
- Encourage your child to spit out after brushing but not to rinse with water, so that the fluoride stays on their teeth longer.
- Make brushing a routine - just before your child goes to bed and at least one other time during the day.
- Introduce an electric toothbrush when they have a full set of teeth.
- Encourage your child - praise will often get results!
- Ask their upper limb OT for tips and advice on toothbrushes as they get older.

Helping children...

look after their teeth



I'm the one with limb difference, not my child.

As the parent, you will need to brush your child's teeth for them until they are able to do it themselves, but if it causes you pain, you should consider if anyone else can help instead. Can your partner, an older sibling or another person help your child, to save your intact arm? If not, then adhere to the same advice on page 10.



For some upper limb amputees,

avoiding *Teeth* use might be impossible..

.. so what can you do to help yourself ?

Be aware:

- If you are going to use your teeth THINK first – what is the task?
- Is there an alternative?

Be conscious about it:

- Try to be gentle and do it very carefully.
- Use teeth wisely.

Are you very independent? It is okay to..

- Ask for help from someone nearby.
- Ask your OT for guidance.
- Ask your prosthetist to review your prosthesis.



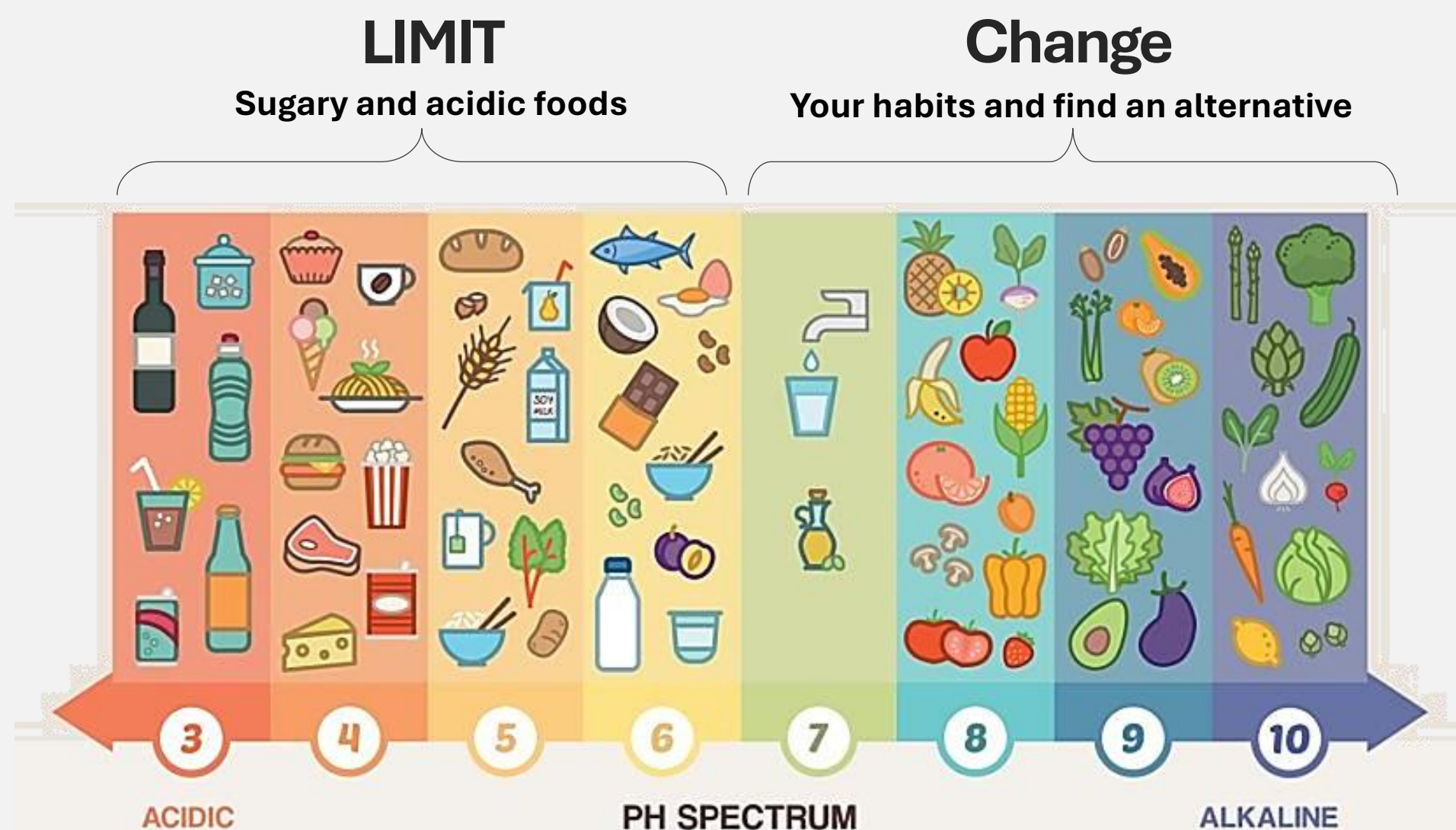
Keep a tool to hand:



Such as a small pair of scissors in your bag or on a key ring, to save using your teeth.

Diet and Oral Health..

The main cause of tooth decay is not the amount of sugar or acid in the diet, but how often it is eaten or drunk. The more often you have sugary or acidic foods or drinks, the more likely your teeth will decay^[16].



Mealtimes ^[17]

- Only have sugary and acidic foods at mealtimes¹⁵
- This includes sugary drinks and juice.
- Drink water, milk and sugar free drinks in between meals.

Snacks ^[17]

- Stick to cheese, vegetables and fruit.
- Limit how much dried fruit you have as it is high in sugar.

Be Sugar Wise ^[17,18]

- Check the list of ingredients: the higher up the list sugar is, the more there is in the product.
- Generally anything ending in 'ose' is a sugar,

for example: fructose, glucose, lactose or sucrose.

When to seek professional help..

From your Occupational Therapist

Occupational therapists are trained to analyse daily activities such as oral care and determine appropriate modifications or strategies to foster independence.

An **occupational therapist** can provide personalised strategies^[19] for selecting the right tools, safety modifications, energy conservation strategies, and other modifications.

Selecting the right adaptive tools for your specific needs ^[20, 21]:

- Use a cuff around the residual limb to hold the toothbrush.
- Use a large handled toothbrush – can add foam tubing if needed.
- Use an electric toothbrush.
- Use a prosthetic arm to brush teeth.
- Use a Waterpik instead of a toothbrush.
- Use flossing picks, a flossing tool or an electric flosser.
- Use toothpaste in a pump rather than a tube.
- Use a toothpaste dispenser – electric or gravity.
- Use Miswak/Siwak chew sticks in place of toothbrushing some or all of the time^[22].
- Use a toothbrush with a suction cup base to make applying toothpaste easier.
- Use toothpaste tubes with a flip top which can be opened with one hand.



When to seek professional help..

From your Occupational Therapist

Energy conservation strategies and other modifications:

(also go back and read page 10)

- Take a break between brushing the top and the bottom.
- Use a chair to sit while brushing.
- Rest or prop your brushing arm on the sink or counter to eliminate need to hold arm up.
- Use an electric toothbrush to minimise movements.
- Use a toothpaste pump to eliminate need to remove the cap.
- Use both the residual limb with a cuff and the intact limb, taking turn and swapping sides.
- Arrange items on the counter spaced apart to allow for easier access.



When to seek professional help..

From your Prosthetist

Research shows that acquired amputees (those who had a limb at birth but lost it later) have a higher rate of chipped teeth from using them for everyday activities, and that being a prosthesis wearer, does not prevent chipped or damaged teeth^[1].

This research suggests that congenital amputees (those born with a limb difference), may be at lower risk of teeth damage than acquired amputees, but it is not yet understood why^[1].

These findings also show that prosthetic arms have limitations and are abandoned or not found useful for all tasks^[1] and that there is no strong evidence that prosthetic training will stop you using your teeth either^[23].

If you are using your teeth to help with everyday tasks, it may mean that your current prosthesis could be improved. Support is available — and small changes can protect your teeth while making daily life easier.

Seek help from your Prosthetist if:

- You regularly use your teeth for tasks (e.g., holding, pulling, tearing).
- You feel your prosthesis is not meeting your daily needs.
- You avoid wearing your prosthesis because it feels difficult or ineffective.
- You notice changes in how you perform daily activities.
- You want to explore better functional options or upgrades.

When to seek professional help..

From your Prosthetist

A prosthetic arm is designed to support independence and reduce strain on your body^[25] - including your teeth. However, there are virtually no research findings on how much they help with daily tasks, therefore we cannot say for sure whether wearing a prosthetic arm actually helps reduce compensatory behaviours (like using your teeth), however....

...a prosthetic arm should still be considered as an alternative to your teeth.

Is your prosthesis right for you?		
Type of Prosthesis	Benefits	Tips
Mechanical Hands (Body-Powered Prostheses)	Strong grip and useful for stabilising items (e.g., holding a jar while opening with the other hand) ^[26] .	1. Practice grip strength control with your prosthetist. 2. Use adaptive techniques (e.g., bracing objects against a surface).
Terminal Devices (Hooks or Specialist Tools can be with cables)	Excellent precision and control. Hooks can grip thin or flexible materials easily. While some devices are designed specifically for tasks like cooking or DIY ^[27] .	1. Consider task-specific attachments (e.g., kitchen aids, tool holders). 2. Learn positioning techniques to maximise efficiency.
Myoelectric Hands (Muscle signals control movement)	More precise grip patterns (pinch, tripod, lateral grip). Good for handling small objects like zips or wrappers. Reduce the need for compensatory strategies like using teeth ^[28] .	1. Ask about different grip modes for daily tasks. 2. Practice task-specific training (e.g., opening packets, holding utensils).
Multi-Grip Hands (MGH offer multiple grip patterns)	Allow switching between grips for different tasks. Improves independence in complex activities. Reduce reliance on compensatory strategies like using teeth.	1. Work with your prosthetist to customise grip settings. 2. Practice common daily tasks using appropriate grip modes.

When to seek professional help..

From your Prosthetist

There is no strong research evidence that having training on how to use your prosthetic arm properly will improve your daily life. Prosthetic training – also called prosthetic rehabilitation - is seen as promising, but further research is needed^[25].

If wearing your prosthetic arm will help you avoid using your teeth, then it is highly recommended.

Your Prosthetist Can Help With:

- Adjusting fit and comfort of your prosthesis.
- Recommending more suitable devices or upgrades.
- Training you in new techniques for daily activities.
- Suggesting task-specific solutions to reduce strain.

Key Message

If you are using your teeth to help with everyday tasks, it usually means your current setup could be improved. Support is available and small changes can protect your teeth while making daily life easier.

Many people with upper-limb difference use compensatory ways to help with everyday tasks^[24]. While this can feel helpful in the moment, it can lead to damage over time. Your teeth are not tools and protecting them is important for your long-term health^[1, 27, 28].

Remember



References

1. Parkin, C and Courtnage, L. (2026) Use of teeth as a compensatory strategy in unilateral upper limb amputation: a global descriptive case study, *Disability and Rehabilitation*, pp. 1-10. <https://doi.org/10.1080/09638288.2026.2669993>
2. Jenkins A (2025) Understanding Musculoskeletal Concerns of Adults with Congenital Upper Limb Differences: Prevalence, Impact on Function and Treatment. *J Musculoskelet Disord Treat* 11:133. <https://doi.org/10.23937/2572-3243.1510133>
3. <https://www.myfamilydentalqld.com.au/teeth-are-not-tools/>
4. <https://www.amywarkdmd.com/why-you-shouldnt-use-your-teeth-as-tools/>
5. <https://andersonpediatricdentistry.com/blog/176296-using-your-teeth-as-tools>
6. <https://www.designerforsmiles.com/dental-health/teeth-are-not-tools/>
7. https://www.uhd.nhs.uk/uploads/about/docs/our_publications/patient_information_leaflets/dpc/one_handed_techniques_571-22.pdf
8. <https://www.dentalhealth.org/caring-for-my-teeth>
9. <https://www.guysandstthomas.nhs.uk/health-information/daily-tasks-using-1-hand>
10. <https://www.dentalhealth.org/dental-care-for-people-with-special-needs>
11. <https://www.dentalhealth.org/childrens-teeth>
12. <https://www.dentalhealth.org/dental-care-for-mother-and-baby>
13. <https://www.dentalhealth.org/wisdom-teeth>
14. <https://www.dentalhealth.org/oral-health-and-physical-disabilities>
15. <https://www.nhs.uk/baby/babys-development/teething/looking-after-your-babysteeth/#:~:text=You%20can%20start%20brushing%20your,tiny%20smear%20of%20fluoride%20toothpaste.>
16. <https://www.dentalhealth.org/childrens-teeth>
17. <https://www.widgetlibrary.knowledge.scot.nhs.uk/media/WidgetFiles/2202/oral%20health%20leaflet%204%20print.pdf>
18. <https://www.bsdht.org.uk/making-oral-care-more-accessible-and-for-all/>
19. https://feno.co/blogs/news/brushing-and-flossing-with-one-hand-after-stroke-essential-tools-and-techniques-for-better-oral-health?srsId=AfmBOooyP1N_zLSkhih4j7kl7yu3WqI-mMk5X68h4ztBuR6hHV2lWBUS
20. <https://amputee-coalition.org/resources/activities-of-daily-living-bathroom-edition/>
21. <https://www.armdynamics.com/upper-limb-library/bathroom-routine-hacks-for-people-with-a-limb-difference>
22. Haue, M.M. and Alsareli, S.A. (2015) 'A review of the therapeutic effects of using miswak (Salvadora Persica) on oral health', *Saudi Med J*, 36(5), pp.530-543. <https://doi:10.15537/smj.2015.5.10785>.
23. Soyer, K., Unver, B., Tamer, S., and Ulger, O. (2016) 'The importance of rehabilitation concerning upper extremity amputees: A Systematic review', *Pak J Med Sci*. 32(5), pp. 1312-1319. <https://doi:10.12669/pjms.325.9922>.
24. Gaine, W.J., Smart, C. and Bransby-Zachary, M. (1997) 'Upper limb traumatic amputees: Review of prosthetic use', *J Hand Surg Br*, 22(1), pp. 73-6. [https://doi:0.1016/s0266-7681\(97\)80023-x](https://doi:0.1016/s0266-7681(97)80023-x).
25. Carlyle, K. and Day, S. (2022) 'Outcome measures used to assess hand activity in amputee populations', *Can Prosthet Orthot J*. 25(2), p.39023. <https://doi:10.33137/cpoj.v5i2.39023>.
26. Resnik, L., Borgia, M. and Clark, M. (2020) 'Function and quality of life in upper limb amputees', *Arch Phys Med Rehabil*, 101(8), pp. 1396-1406.
27. Østlie, K. et al. (2012) 'Prosthesis use in adult acquired major upper-limb amputees: patterns of wear, prosthetic skills and the actual use of prostheses in activities of daily life', *Disabil Rehabil Assist Technol*, 7(6), pp. 479-93. <https://doi:10.3109/17483107.2011.653296>.
28. Chadwell, A. et al. (2018) 'Upper limb activity in myoelectric prosthesis users', *Scientific Reports* 8, p.11084. 2018. <https://doi:10.1038/s41598-018-29503-6>.

Authors:

1. Dr Claire Parkin – Associate Professor in Medical Education – Kent and Medway Medical School, Canterbury, Kent. United Kingdom. claire.parkin@kmms.ac.uk
2. Lewis Courtnage – Final Year Medical Student – Kent and Medway Medical School, Canterbury, Kent. United Kingdom
3. Lizzy Jones – Specialist Occupational Therapist Upper Limb Difference and Prosthetics – Kent and Medway Prosthetic Centre, Maidstone. United Kingdom.
4. Dr Amber Jenkins – Assistant Professor, Department of Occupational Therapy and Health Science, Rockhurst University. Kansas City, MO. USA
5. Usama Bin Yar – Prosthetist, Kent and Medway Prosthetic Centre, Maidstone. United Kingdom.
6. Laura Faye Clubok, Occupational Therapist and Founder, On The Other Hand Therapy – <https://ontheotherhand.org/limb-difference>. Columbus, OH. USA.
7. Professor Kenneth A. Eaton – Visiting Professor, The Dental Academy of University of Portsmouth, Honorary Professor, University of Kent, United Kingdom.

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