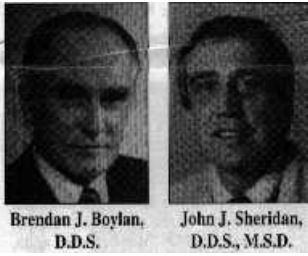


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Mushroom Spring for Minor Tooth Movement *Chromium The Most Deficient Nutrient in our Health Today*



Dr. Boylan is in the private practice of orthodontics at 41 E. 57th St., New York, NY 10022. Dr. Sheridan is an Associate Editor of the Journal of Clinical Orthodontics and a Professor of Orthodontics, Louisiana State University School of Dentistry, New Orleans.

Mushroom Spring for Minor Tooth Movement

Spring forces are usually delivered through free-ended wires based in the acrylic body of a removable appliance. The efficiency of such an appliance depends on the diameter and configuration of the wire that delivers a force to a contact point on the target tooth. Although the force of a finger spring can be varied, its application is usually limited to a specific area of the crown. Since the spring is essentially a freeended beam, it is also prone to distortion. Mushroom Spring Design

By contrast, the mushroom spring exerts a continuous force that can be varied to act on different areas of the clinical crown (Fig. 1). A mushroom spring can be constructed to conform to any tooth (Fig. 2).

The continuous force is delivered from a well-clasped removable acrylic appliance. Dual anchors in the base acrylic provide stability, making the spring less likely to shift on the tooth surface.

The springs are fabricated from .016" stainless steel Australian wire. Because of the umbrella shape of the mushroom "wings", the force is basically horizontal, which reduces (but does not altogether eliminate) displacement force vectors. The spring can be adjusted to deliver variable forces during treatment without altering the base appliance.

Activation can be accomplished by any combination of two methods:

1. Adjusting the legs of the spring adjacent to the acrylic base.
2. Modifying selected areas of the loops individually or in combination.

Rotation can be produced by unilaterally altering the mushroom wings and placing a complementary facial wire to provide a counterbalancing moment, which creates a rotational couple.

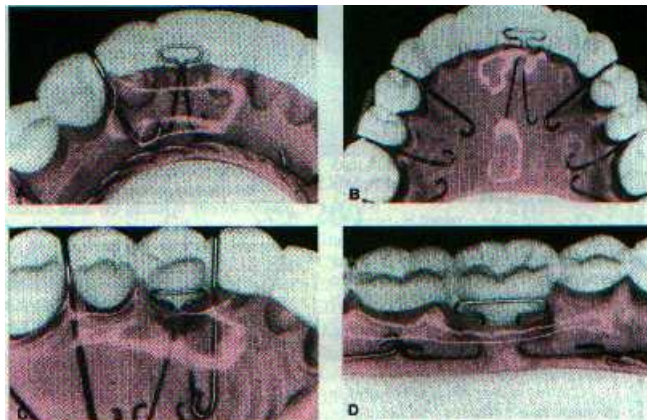


Fig. 1 A. Single mushroom spring for labial movement of lower incisor. B. Double mushroom spring for labial movement of upper incisor. C. Small double mushroom spring for buccal movement of lower first bicuspid. D. Large double mushroom spring for buccal movement of lower molar. (Note. Gin gival loops of double springs are obscured by acrylic in photographs. With all double springs, gin gival portion should be blocked out during fabrication so it is free of acrylic base.)

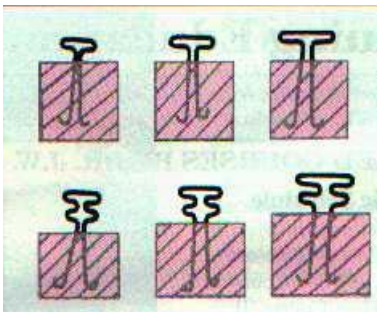


Fig. 2 Various designs of mushroom springs: small, medium, large, with single and double loops. Hashmarks indicate acrylic base.

Advantages of the Mushroom Spring

The mushroom spring is unique in that it allows multiple adjustments within a closed-loop, distortion-resistant configuration. Its design precludes the accidental distortion that all too frequently negates the action of a free-ended spring and prolongs treatment. Mushroom springs promote better patient acceptance of removable appliances. The clinician also benefits, because wire-induced tissue irritation and emergency visits are substantially reduced.

The cost of fabrication of a mushroom spring is about one-third more than that of a conventional clasp. We believe the benefits of this efficient device far outweigh the minor additional expense.

All orthodontists are aware of the drawbacks of removable appliances. The mushroom spring is a small step in the right direction — toward better service to our patients.

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Chromium The Most Deficient Nutrient in our Health Today

By RON SHULER, B.S., D.D.S.

Dr. Shuler has a B.S. degree from Central Missouri State College and received his D.D.S. degree from St. Louis University. He is a member of the Academy of General Dentistry, and has received a fellowship from the International Congress of Oral Implantology. He is also a Diplomate in the International Congress of Oral Implantology.

Dr. Shuler has published a number of articles including *The Journal of Dental Research* and *The Dental Implant Clinical and Biological Response to Oral Tissue* from the American Academy Implant Prosthodontics.

As Doctors, no one needs to remind us of our high stressful and often times demanding position. Because of our lifestyle, we need to consider our Health status. More and more research is being placed on the importance of nutrition and its role in obtaining optimal

It has been estimated that over 90% of today's population is deficient in chromium and I guess the common question would be Why? Chromium is an essential micro mineral, and because of this trace amount, it is easily depleted from our bodies.

Deficiency of chromium may effect our immune system, cause fatigue, stress, fat production, and research shows it may be a factor in heart disease and diabetes. Research also shows that refined sugars, soil depletion, modern diets and even exercise can effect the level of chromium.

Chromium is an essential co-factor for insulin. Dr. Richard Passwater states that "severe insulin malfunction can produce diabetes, but few realize that even "mild" insulin dysfunction results in low energy levels, fat production, craving for sweets and high cholesterol levels." Chromium then aids in the binding of insulin to the cell, which in turn allows glucose to be taken up by the cell.

Nine out of ten that are deficient in chromium have a propensity for fighting the battle of the bulge, since it is involved in the metabolic conditioning of the individual. Their metabolism is depressed by 22% because of the inefficiency of the glucose tolerance factor and also the inability of the insulin to be potentiated due to the lack of chromium. However, when taking a "chelated" form of chromium, it activates the action of the insulin and normalizes the metabolism so one has more energy and burns more fat. This may be the reason why lean mass ratio increases and fat mass decreases when taking supplemental chelated chromium.

In the case of exercising, large increases of chromium are excreted. When chromium amounts are lost through exercise and dietary intakes below the recommended levels, individuals who train intensively may be at special risk due to repeated chromium loss.

There are other studies indicating that it also assists in lowering blood levels of cholesterol. Researchers at Ohio State University and the Medical College of Ohio measured 32 patients who were presented for angiography. Only the patients who were free of coronary artery disease had chromium levels above 5.5 micrograms per liter of blood. Those with coronary heart disease had significantly lower blood chromium.

The USDA have repeatedly warned that most people are not getting adequate amounts of chromium in their diets due to our reliance on highly processed refined foods which removes up to 80% of the chromium. Even whole foods such as fruits and vegetables may still be low in chromium due to soil deficiency.

I have a book by Dr. H. DeWayne Ashmead, "Conversations on Chelation and Mineral Nutrition" where he states that a considerable amount of research with diabetes concludes that a chromium deficiency is frequently present in diabetes. He quotes Dr. Len Mervyn, "The importance of chromium to man has only recently become apparent with the discovery of its role

in allowing the muscles to take up sugar from the blood. Deficiency of a mineral leads to a condition almost indistinguishable from mild diabetes mellitus, with symptoms including a high fasting blood sugar, due to the inability of the body tissues to remove the sugar from the blood, and a high urinary glucose output. Hence, some diabetics respond favorably to chromium supplementation. There is little doubt that lack of chromium or the inability to utilize it is a factor in the development of diabetes.”

Someone may ask the question about the possible toxicity by taking too much chromium. In a study by Byerrium on toxicity of chromium, they found that they could not get enough chromium in the gastrol intestinal track of laboratory animals to even perform a LD-50 test. One thing they did discover is that it increased the life span of the laboratory animals that did receive a high dosage by as much as 45%. Thus, chromium is the safest of all trace minerals, and ranks with vitamin C and vitamin E in terms of proven safety.

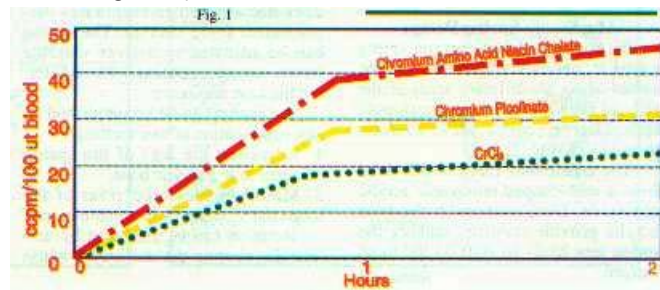
In summary, research and studies have been presented showing the relative necessity for chromium and the possibility of deficiency in our diets. Each individual will have to access where they might be nutritionally with this very important micro nutrient.

In the last Newsletter, you were introduced to the concept of nutritional supplement of Branch Chain Amino Acid Chelation. With this concept in mind using a known 2 in our Health Today absorbable biological available form of chromium may be the answer.

Recent studies indicate that the Chromium Amino Acid Niacin Chelate is more biologically available than even the W more popular form of chromium called “Chromium Picolinate”. Through a patented pending process, Albion has developed a much more stable chelated form of Chromium using one mole of chromium, two moles of amino acid, and two moles of nicotinic acid. This unique revolutionary process makes chromium not only more biologically available, but very stable in the acidic condition of the stomach. Mertz has stated, without the amino acids chelated to the niacin chromium complex, the chromium does not reach its most optimal form for becoming biologically available. A study by Graff, /D., et al.. which has been submitted for publication, indicates—that in a given period of two hours that chromium chelate was almost twice the amount absorbed compared to chromium chloride and even better absorbed in the blood than the chromium picolinate. (Refer to table 1 and figure 1)

	1 Hour	2 Hours
CrCl ₃	17.0±4.3	23.8±4.3
Cr Picolinate	29.1±9.8	31.2±12.8
Cr Chelate	37.4±11.4	45.6±25.0

*Corrected counts per minute/100 lg.



It is suggested 50 to 200 micrograms of chromium per day be taken in supplemental form, depending on the individual's deficiency. It appears that Dr. Ashmead, once again, has the most biological available form of chromium to cause our bodies to be more efficient and to function in a more optimal manner.

For Doctors who desire a more in depth understanding of this concept utilizing chromium or would like to experience Dr. Ashmead's chelated chromium, contact me at: 816-827-1212 or 800-473-8538 (voice mail). Next newsletter will cover the ramifications of magnesium deficiency, and a simple test for its deficiency using intracellular diagnostic assessment. I will explain how this can be incorporated into a dental practice.